

INSTRUCTIONS

ABOUT IDOT PROPOSALS: All proposals are potential bidding proposals. Each proposal contains all certifications and affidavits, a proposal signature sheet and a proposal bid bond.

PREQUALIFICATION

Any contractor who desires to become pre-qualified to bid on work advertised by IDOT must submit the properly completed pre-qualification forms to the Bureau of Construction no later than 4:30 p.m. prevailing time twenty-one days prior to the letting of interest. This pre-qualification requirement applies to first time contractors, contractors renewing expired ratings, contractors maintaining continuous pre-qualification or contractors requesting revised ratings. To be eligible to bid, existing pre-qualification ratings must be effective through the date of letting.

WHO CAN BID ?

Bids will be accepted from only those companies that request and receive written Authorization to Bid from IDOT's Central Bureau of Construction. This does not apply to Small Business Set-Asides.

REQUESTS FOR AUTHORIZATION TO BID

Contractors wanting to bid on items included in a particular letting must submit the properly completed "Request for Authorization to Bid/or Not For Bid Status" (BDE 124) and the ORIGINAL "Affidavit of Availability" (BC 57) to the proper office no later than 4:30 p.m. prevailing time, three (3) days prior to the letting date. This does not apply to Small Business Set-Asides.

WHAT CONSTITUTES WRITTEN AUTHORIZATION TO BID?: When a prospective prime bidder submits a "Request for Authorization to Bid/or Not For Bid Status"(BDE 124) he/she must indicate at that time which items are being requested For Bidding purposes. Only those items requested For Bidding will be analyzed. After the request has been analyzed, the bidder will be issued an **Authorization to Bid or Not for Bid Report**, approved by the Central Bureau of Construction that indicates which items have been approved For Bidding. If **Authorization to Bid** cannot be approved, the **Authorization to Bid or Not for Bid Report** will indicate the reason for denial.

ABOUT AUTHORIZATION TO BID: Firms that have not received an Authorization to Bid or Not For Bid Report within a reasonable time of complete and correct original document submittal should contact the department as to the status. Firms unsure as to authorization status should call the Prequalification Section of the Bureau of Construction at the number listed at the end of these instructions. These documents must be received three days before the letting date.

ADDENDA AND REVISIONS: It is the bidder's responsibility to determine which, if any, addenda or revisions pertain to any project they may be bidding. Failure to incorporate all relevant addenda or revisions may cause the bid to be declared unacceptable.

Each addendum or revision will be included with the Electronic Plans and Proposals. Addenda and revisions will also be placed on the Addendum/Revision Checklist and each subscription service subscriber will be notified by e-mail of each addendum and revision issued.

The Internet is the Department's primary way of doing business. The subscription server e-mails are an added courtesy the Department provides. It is suggested that bidders check IDOT's website at <http://www.dot.il.gov/desenv/delett.html> before submitting final bid information.

IDOT IS NOT RESPONSIBLE FOR ANY E-MAIL FAILURES.

Addenda questions may be directed to the Plans and Contracts Office at (217)782-7806 or D&Econtracts@dot.il.gov

Technical questions about downloading these files may be directed to Tim Garman at (217)524-1642 or Timothy.Garman@illinois.gov.

BID SUBMITTAL GUIDELINES AND CHECKLIST

In an effort to eliminate confusion and standardize the bid submission process the Contracts Office has created the following guidelines and checklist for submitting bids.

This information has been compiled from questions received from contractors and from inconsistencies noted on submitted bids. If you have additional questions please refer to the contact information listed below.

ABOUT SUBMITTING BIDS: It is recommended that bidders deliver bid proposals in person to ensure they arrive at the proper location prior to the time specified for the receipt of bids. Any proposals received at the place of letting after the time specified will not be read.

STANDARD GUIDELINES FOR SUBMITTING BIDS

- All pages should be single sided.
- Use the Cover Page that is provided in the Bid Proposal (posted on the IDOT Web Site) as the first page of your submitted bid. This page has the Item number in the upper left-hand corner and lines provided for your company name and address in the upper right-hand corner.
- Do not use report covers, presentation folders or special bindings and do not staple multiple times on left side like a book. Use only 1 staple in the upper left hand corner. Make sure all elements of your bid are stapled together including the bid bond or guaranty check (if required).
- Do not include any certificates of eligibility, your authorization to bid, Addendum Letters or affidavit of availability.
- Do not include the Subcontractor Documentation with your bid (pages i – iii and pages a – g). This documentation is required only after you are awarded the contract.
- Use the envelope cover sheet (provided with the proposal) as the cover for the proposal envelope.
- Do not rely on overnight services to deliver your proposal prior to 10 AM on letting day. It will not be read if it is delivered after 10 AM.
- Do not submit your Substance Abuse Prevention Program (SAPP) with your bid. If you are awarded the contract this form is to be submitted to the district engineer at the pre-construction conference.

Use the following checklist to ensure completeness and the correct order in assembling your bid

Cover page followed by the Pay Items. If you are using special software or CBID to generate your schedule of prices, do not include the blank schedule of prices.

Page 4 (Item 9) – Check “YES” if you will use a subcontractor(s). Include the subcontractor(s) name, address and the dollar amount (if over \$25,000). If you will use subcontractor(s) but are uncertain who or the dollar amount; check “YES” but leave the lines blank.

After page 4, Insert your Cost Adjustments for Steel, Bituminous and Fuel (if applicable), and your State Board of Elections certificate of registration.

Page 10 (Paragraph J) – Check “YES” or “NO” whether your company has any business in Iran.

Page 10 (Paragraph K) – List the Union Local Name and number or certified training programs that you have in place. Do not include certificates with your bid. Keep the certificates in your office in case they are requested by IDOT.

Page 11 (Paragraph L) - Insert a copy of your State Board of Elections certificate of registration after page 4 of the bid proposal. Only include the page that has the date stamp on it. Do not include any other certificates or forms showing that you are an Illinois business.

Page 11 (Paragraph M) – Indicate if your company has hired a lobbyist in connection with the job for which you are submitting the bid proposal.

Page 12 (Paragraph C) – This is a work sheet to determine if a completed Form A is required. It is not part of the form and you do not need to make copies for each Form A that is filled out.

Pages 14-17 (Form A) – One Form A (4 pages) is required for each applicable person in your company. Copies of the Forms can be used and only need to be changed when the financial information changes. The certification signature and date must be original for each letting. Do not staple the forms together.

If you answered “NO” to all of the questions in Paragraph C (page 12), complete the first section (page 14) with your company information and then sign and date the Not Applicable statement on page 17.

Page 18 (Form B) - If you check “YES” to having other current or pending contracts it is acceptable to use the phrase, “See Affidavit of Availability on file”.

Page 20 (Workforce Projection) – Be sure to include the Duration of the Project. It is acceptable to use the phrase “Per Contract Specifications”.

Bid Bond – Submit your bid bond using the current Bid Bond Form provided in the proposal package. The Power of Attorney page should be stapled to the Bid Bond. If you are using an electronic bond, include your bid bond number on the form and attach the Proof of Insurance printed from the Surety 2000 Web Site.

Disadvantaged Business Utilization Plan and/or Good Faith Effort – The last item in your bid should be the DBE Utilization Plan (SBE 2026), DBE Participation Statement (SBE 2025) and supporting paperwork. If you have documentation for a Good Faith Effort, it should follow the SBE Forms.

The Bid Letting is now available in streaming Audio/Video from the IDOT Web Site. A link to the stream will be placed on the main page of the current letting on the day of the Letting. The stream will not begin until 10 AM. The actual reading of the bids does not begin until approximately 10:20 AM.

Following the Letting, the As-Read Tabulation of Bids will be posted by the end of the day. You will find the link on the main page of the current letting.

QUESTIONS: pre-letting up to execution of the contract

Contractor/Subcontractor pre-qualification -----217-782-3413
Small Business, Disadvantaged Business Enterprise (DBE) -----217-785-4611
Contracts, Bids, Letting process or Internet downloads-----217-785-0230
Estimates Unit -----217-785-3483

QUESTIONS: following contract execution

Including Subcontractor documentation, payments -----217-782-3413
Railroad Insurance -----217-785-0275

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RETURN WITH BID

Proposal Submitted By
Name
Address
City

Letting January 20, 2012

NOTICE TO PROSPECTIVE BIDDERS

This proposal can be used for bidding purposes by only those companies that request and receive written AUTHORIZATION TO BID from IDOT's Central Bureau of Construction. This does not apply to Small Business Set-Asides.

BIDDERS NEED NOT RETURN THE ENTIRE PROPOSAL

Notice to Bidders, Specifications, Proposal, Contract and Contract Bond



**Illinois Department
of Transportation**

Springfield, Illinois 62764

Contract No. 63650
KANE County
Section 04-00092-00-BR (St. Charles)
Route RED GATE ROAD
Project M-TE-CMM-HD-TCS-IL08(030)
District 1 Construction Funds

PLEASE MARK THE APPROPRIATE BOX BELOW:

- A Bid Bond is included.

- A Cashier's Check or a Certified Check is included

Prepared by

Checked by

F

(Printed by authority of the State of Illinois)

Page intentionally left blank

RETURN WITH BID



PROPOSAL

TO THE DEPARTMENT OF TRANSPORTATION

1. Proposal of _____

Taxpayer Identification Number (Mandatory) _____

for the improvement identified and advertised for bids in the Invitation for Bids as:

**Contract No. 63650
KANE County
Section 04-00092-00-BR (St. Charles)
Project M-TE-CMM-HD-TCS-IL08(030)
Route RED GATE ROAD
District 1 Construction Funds**

Construct a new eight span structure, 1,147"-11 1/2" in length with an underslung cable stayed multi-use bridge, carrying Red Gate Road over the Fox River. Project includes new roadway construction, the widening and reconstruction of Illinois Route 25 and Illinois Route 31, storm sewer, water main, traffic signal and lighting, located in the City of St. Charles.

2. The undersigned bidder will furnish all labor, material and equipment to complete the above described project in a good and workmanlike manner as provided in the contract documents provided by the Department of Transportation. This proposal will become part of the contract and the terms and conditions contained in the contract documents shall govern performance and payments.

RETURN WITH BID

3. **ASSURANCE OF EXAMINATION AND INSPECTION/WAIVER.** The undersigned further declares that he/she has carefully examined the proposal, plans, specifications, addenda form of contract and contract bond, and special provisions, and that he/she has inspected in detail the site of the proposed work, and that he/she has familiarized themselves with all of the local conditions affecting the contract and the detailed requirements of construction, and understands that in making this proposal he/she waives all right to plead any misunderstanding regarding the same.

4. **EXECUTION OF CONTRACT AND CONTRACT BOND.** The undersigned further agrees to execute a contract for this work and present the same to the department within fifteen (15) days after the contract has been mailed to him/her. The undersigned further agrees that he/she and his/her surety will execute and present within fifteen (15) days after the contract has been mailed to him/her contract bond satisfactory to and in the form prescribed by the Department of Transportation, in the penal sum of the full amount of the contract, guaranteeing the faithful performance of the work in accordance with the terms of the contract.

5. **PROPOSAL GUARANTY.** Accompanying this proposal is either a bid bond on the department form, executed by a corporate surety company satisfactory to the department, or a proposal guaranty check consisting of a bank cashier's check or a properly certified check for not less than 5 per cent of the amount bid or for the amount specified in the following schedule:

<u>Amount of Bid</u>		<u>Proposal Guaranty</u>	<u>Amount of Bid</u>		<u>Proposal Guaranty</u>	
Up to	\$5,000	\$150	\$2,000,000	to	\$3,000,000	\$100,000
\$5,000	to \$10,000	\$300	\$3,000,000	to	\$5,000,000	\$150,000
\$10,000	to \$50,000	\$1,000	\$5,000,000	to	\$7,500,000	\$250,000
\$50,000	to \$100,000	\$3,000	\$7,500,000	to	\$10,000,000	\$400,000
\$100,000	to \$150,000	\$5,000	\$10,000,000	to	\$15,000,000	\$500,000
\$150,000	to \$250,000	\$7,500	\$15,000,000	to	\$20,000,000	\$600,000
\$250,000	to \$500,000	\$12,500	\$20,000,000	to	\$25,000,000	\$700,000
\$500,000	to \$1,000,000	\$25,000	\$25,000,000	to	\$30,000,000	\$800,000
\$1,000,000	to \$1,500,000	\$50,000	\$30,000,000	to	\$35,000,000	\$900,000
\$1,500,000	to \$2,000,000	\$75,000	over		\$35,000,000	\$1,000,000

Bank cashier's checks or properly certified checks accompanying proposals shall be made payable to the Treasurer, State of Illinois, when the state is awarding authority; the county treasurer, when a county is the awarding authority; or the city, village, or town treasurer, when a city, village, or town is the awarding authority.

If a combination bid is submitted, the proposal guaranties which accompany the individual proposals making up the combination will be considered as also covering the combination bid.

The amount of the proposal guaranty check is _____ \$(_____). If this proposal is accepted and the undersigned shall fail to execute a contract bond as required herein, it is hereby agreed that the amount of the proposal guaranty shall become the property of the State of Illinois, and shall be considered as payment of damages due to delay and other causes suffered by the State because of the failure to execute said contract and contract bond; otherwise, the bid bond shall become void or the proposal guaranty check shall be returned to the undersigned.

Attach Cashier's Check or Certified Check Here	
In the event that one proposal guaranty check is intended to cover two or more proposals, the amount must be equal to the sum of the proposal guaranties which would be required for each individual proposal. If the guaranty check is placed in another proposal, state below where it may be found.	
The proposal guaranty check will be found in the proposal for:	Item _____
	Section No. _____
	County _____

Mark the proposal cover sheet as to the type of proposal guaranty submitted.

STATE JOB # - C-91-322-04
 PPS NBR - 1-10963-0000

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT NUMBER - 63650
 ECMS002 DTGECM03 ECMR003 PAGE 1
 RUN DATE - 12/19/11
 RUN TIME - 190107

COUNTY NAME	CODE	DIST	SECTION NUMBER	PROJECT NUMBER	ROUTE
KANE	089	01	04-00092-00-BR (ST. CHARLES)	M-TE-CMM-HD-IL08/030/000	RED GATE ROAD

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
A2C02501	T-CERCIS CANAD 1 CG	EACH	34.000	X	=		
A2C05600	T-OSTRYA VIRG IW 1 CG	EACH	13.000	X	=		
A2000120	T-ACERX FREM AB 2-1/2	EACH	55.000	X	=		
A2001012	T-ACER RUBRUM 1-1/2	EACH	18.000	X	=		
A2001710	T-ACER SACCRUM 1-1/4	EACH	9.000	X	=		
A2002612	T-CARYA CORD 1-1/2	EACH	12.000	X	=		
A2002920	T-CELTIS OCCID 2-1/2	EACH	30.000	X	=		
A2005020	T-GYMNOCCLA DID 2-1/2	EACH	25.000	X	=		
A2005110	T-JUGLANS NIGRA 1	EACH	8.000	X	=		
A2005512	T-NYSSA SYLVAT 1-1/2	EACH	19.000	X	=		
A2006520	T-QUERCUS BICOL 2-1/2	EACH	12.000	X	=		
A2006612	T-QUERCUS IMBR 1-1/2	EACH	37.000	X	=		
A2006720	T-QUERCUS MACR 2-1/2	EACH	27.000	X	=		
A2006820	T-QUERCUS MEUH 2-1/2	EACH	22.000	X	=		
A2007064	T-MALUS PR 1-1/2LB BB	EACH	31.000	X	=		

RED GATE
 04-00092-00-BR (ST. CHARLES)
 KANE

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT NUMBER - 63650

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 RUN DATE - 12/19/11
 RUN TIME - 190107

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	CTS
				DOLLARS	CENTS		
A2007112	T-QUERCUS RUBRA 1-1/2	EACH	11.000				
A2007620	T-TAXODIUM DIS 2-1/2	EACH	33.000				
B2000768	T-AMEL X GF AB SF 7'	EACH	56.000				
D2001872	E-PICEA GLAUCA 6'	EACH	34.000				
D2002172	E-PICEA PUNGENS 6'	EACH	35.000				
D2002972	E-PINUS STROBUS 6'	EACH	38.000				
K0013000	P PL PRAIRI 2X4 DPPLG	UNIT	59.000				
K0013030	P PL WETLND 2X4 DPPLG	UNIT	28.000				
XX000366	CLAY LINER	CU FT	68,780.000				
XX005913	TEMP ACCESS CAUSEWAY	L SUM	1.000				
XX005963	ANTI-GRAFFITI COATING	SQ FT	26,339.000				
XX005968	TURBIDITY CURTAIN	SQ YD	1,295.000				
XX006722	TEMP AGG BRM-COUR AGG	TON	50.000				
XX006723	TEMP AGG BRM-RIPRAP	TON	110.000				
XX006729	PERIM EROS BAR ROL EX	FOOT	500.000				

RED GATE
 04-00092-00-BR (ST. CHARLES)
 KANE

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT NUMBER - 63650

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ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE
				DOLLARS	CENTS	
XX007354	REM SALV & REPL F&G	EACH	1.000	=		
XX007605	LIMESTONE SCR N SURF 3	SQ YD	2,720.000	X		
XX008003	FORM LINER TEX SUR SP	SQ FT	8,238.000	X		
XX008287	BOARDWALK STRUCTURE	SQ FT	15,550.000	X		
XX008423	PRECAST CONC LAGGING	SQ FT	5,916.000	X		
XX008436	VALVE VAULTS 5 DIA	EACH	13.000	X		
XX008616	HMA SC SPECIAL	SQ YD	2,897.000	X		
XX008617	RAIL BASE	FOOT	669.000	X		
XX008618	WATERMAIN SPECIAL	L SUM	1.000	X		
XX008619	FUR CABLE STAY SYSTEM	L SUM	1.000	X		
XX008620	BOARDWALK STRUCT SPL	SQ FT	5,230.000	X		
XX008621	PRC CONC PYLON TYPE A	EACH	18.000	X		
XX008622	PRC CONC PYLON TYPE B	EACH	4.000	X		
XX008623	BRDGE PYLON FACE LGHT	EACH	22.000	X		
XX008624	ELECT MAN TYPE 1 SPL	EACH	4.000	X		

RED GATE
 04-00092-00-BR (ST. CHARLES)
 KANE

ILLINOIS DEPARTMENT OF TRANSPORTATION
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ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	CTS
				DOLLARS	CENTS		
XX008625	ELECT MAN TYPE 2 SPL	EACH	3.000	=			
XX008626	TEMP BRIDGE	L SUM	1.000	=			
XX008627	DI WTR 24 CAS P OC 12	FOOT	50.000	=			
XX008628	DI WTR 30 CAS P OC 16	FOOT	100.000	=			
XX008629	HAUL ROAD EAST	L SUM	1.000	=			
XX008630	HAUL ROAD WEST	L SUM	1.000	=			
XX008631	DRILL EX MAN/HANDHOLE	EACH	12.000	=			
X0321865	ANTI-GRAFFIT PROT SYS	SQ FT	8,238.000	=			
X0324455	DRILL/SET SOLD P SOIL	CU FT	6,469.000	=			
X0325923	CON FLX NON-MET WP 1	FOOT	42.000	=			
X0326962	TRANSFORMER PLATFORM	SQ YD	1.000	=			
X0327008	REM/REL SIGN SPECIAL	EACH	1.000	=			
X0327218	DETN BASIN OUTLET STR	EACH	1.000	=			
X2070304	POROUS GRAN EMB SPEC	CU YD	214.000	=			
X2080250	TRENCH BACKFILL SPL	CU YD	2,295.000	=			

RED GATE
 04-00092-00-BR (ST. CHARLES)
 KANE

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT NUMBER - 63650

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ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	CTS
				DOLLARS	CENTS		
X2502014	SEEDING CL 4A MOD	ACRE	3.200	=			
X4021000	TEMP ACCESS- PRIV ENT	EACH	9.000	=			
X4022000	TEMP ACCESS- COM ENT	EACH	1.000	=			
X4023000	TEMP ACCESS- ROAD	EACH	2.000	=			
X4401198	HMA SURF REM VAR DP	SQ YD	12,534.000	=			
X5051401	F&E STRUCT STL BR N1	L SUM	1.000	=			
X5051402	F&E STRUCT STL BR N2	L SUM	1.000	=			
X5091725	BICYCLE RAILING SPL	FOOT	4,600.000	=			
X5091730	BRIDGE FENCE RAIL SP	FOOT	100.000	=			
X5210110	HLMR BRG GUID EXP 200	EACH	10.000	=			
X5210160	HLMR BRG GUID EXP 450	EACH	25.000	=			
X5610700	WATER MAIN REMOVAL	FOOT	435.000	=			
X6060340	GUTTER OUTLET SPL	EACH	4.000	=			
X6700410	ENGR FLD OFF A SPL	CAL MD	18.000	=			
X7010216	TRAF CONT & PROT SPL	L SUM	1.000	=			

RED GATE
 04-00092-00-BR (ST. CHARLES)
 KANE

ILLINOIS DEPARTMENT OF TRANSPORTATION
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ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
X8130110	JUNCTION BOX SPL	EACH	2.000	=			
X8730250	ELCBL C 20 3C TW SH	FOOT	848.000	=			
Z0001050	AGG SUBGRADE 12	SQ YD	19,329.000	=			
Z0007118	UNTREATED TIMBER LAG	SQ FT	5,916.000	=			
Z0007124	STEEL RAILING SPL	FOOT	3,087.000	=			
Z0013797	STAB CONSTR ENTRANCE	SQ YD	1,152.000	=			
Z0013798	CONSTRUCTION LAYOUT	L SUM	1.000	=			
Z0018010	DRAINAGE SCUPPR DS-33	EACH	13.000	=			
Z0018800	DRAINAGE SYSTEM	L SUM	1.000	=			
Z0019600	DUST CONTROL WATERING	UNIT	100.000	=			
Z0022800	FENCE REMOVAL	FOOT	330.000	=			
Z0026402	FUR SOLDIER PILES HP	FOOT	2,171.000	=			
Z0030240	IMP ATTN TEMP NRD TL2	EACH	2.000	=			
Z0030340	IMP ATTN REL NRD TL2	EACH	2.000	=			
Z0030850	TEMP INFO SIGNING	SQ FT	63.000	=			

RED GATE
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ILLINOIS DEPARTMENT OF TRANSPORTATION
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ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE
				DOLLARS	CENTS	
Z0033056	OPTIM TRAF SIGNAL SYS	EACH	1.000	=		
Z0034210	MECH ST EARTH RET WL	SQ FT	1,483.000	=		
Z0034393	MODULAR EXPAN JT 9	FOOT	73.000	=		
Z0046304	P UNDR FOR STRUCT 4	FOOT	1,117.000	=		
Z0056608	STORM SEW WM REQ 12	FOOT	2,014.000	=		
Z0073510	TEMP TR SIGNAL TIMING	EACH	1.000	=		
Z0076600	TRAINEES	HOOR	1,500.000	=	0.80	1,200.00
Z0077900	WD POST & RAIL FENCE	FOOT	350.000	=		
20100110	TREE REMOV 6-15	UNIT	150.000	=		
20100210	TREE REMOV OVER 15	UNIT	150.000	=		
20100500	TREE REMOV ACRES	ACRE	3.000	=		
20101000	TEMPORARY FENCE	FOOT	4,253.000	=		
20101100	TREE TRUNK PROTECTION	EACH	100.000	=		
20200100	EARTH EXCAVATION	CU YD	9,975.000	=		
20201200	REM & DISP UNS MATL	CU YD	111.000	=		

RED GATE
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ILLINOIS DEPARTMENT OF TRANSPORTATION
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 RUN DATE - 12/19/11
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ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	CTS
				DOLLARS	CENTS		
20700220	POROUS GRAN EMBANK	CU YD	102.000	=			
20800150	TRENCH BACKFILL	CU YD	5,901.000	=			
21001000	GEOTECH FAB F/GR STAB	SQ YD	19,329.000	=			
21101615	TOPSOIL F & P 4	SQ YD	40,971.000	=			
25000210	SEEDING CL 2A	ACRE	9.600	=			
25000320	SEEDING CL 5	ACRE	1.800	=			
25000400	NITROGEN FERT NUTR	POUND	866.000	=			
25000500	PHOSPHORUS FERT NUTR	POUND	866.000	=			
25000600	POTASSIUM FERT NUTR	POUND	866.000	=			
25100115	MULCH METHOD 2	ACRE	14.500	=			
25100630	EROSION CONTR BLANKET	SQ YD	26,662.000	=			
28000305	TEMP DITCH CHECKS	FOOT	143.000	=			
28000400	PERIMETER EROS BAR	FOOT	8,752.000	=			
28000500	INLET & PIPE PROTECT	EACH	13.000	=			
28000510	INLET FILTERS	EACH	48.000	=			

RED GATE
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ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	CTS
				DOLLARS	CENTS		
28100105	STONE RIPRAP CL A3	SQ YD	180.000	=			
28100107	STONE RIPRAP CL A4	SQ YD	1,561.000	=			
28200200	FILTER FABRIC	SQ YD	1,071.000	=			
35101800	AGG BASE CSE B 6	SQ YD	5,482.000	=			
35501308	HMA BASE CSE 6	SQ YD	206.000	=			
35501316	HMA BASE CSE 8	SQ YD	3,817.000	=			
35600708	HMA BC WID 8	SQ YD	1,922.000	=			
40300100	BIT MATLS PR CT	GALLON	2,450.000	=			
40600625	LEV BIND MM N50	TON	1,306.000	=			
40603335	HMA SC "D" N50	TON	23.000	=			
40603340	HMA SC "D" N70	TON	2,006.000	=			
40702700	FURNISH PROFILOGRAPH	L SUM	1.000	=			
42000501	PCC PVT 10 JOINTED	SQ YD	7,632.000	=			
42400200	PC CONC SIDEWALK 5	SQ FT	699.000	=			
42400800	DETECTABLE WARNINGS	SQ FT	50.000	=			

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ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	CTS
				DOLLARS	CENTS		
44000100	PAVEMENT REM	SQ YD	504.000	=			
44000200	DRIVE PAVEMENT REM	SQ YD	2,400.000	=			
44000500	COMB CURB GUTTER REM	FOOT	1,823.000	=			
44000600	SIDEWALK REM	SQ FT	174.000	=			
44004250	PAVED SHLD REMOVAL	SQ YD	2,146.000	=			
44201789	CL D PATCH T2 12	SQ YD	113.000	=			
44201815	CL D PATCH T2 14	SQ YD	53.000	=			
48101600	AGGREGATE SHLDS B 8	SQ YD	1,300.000	=			
48203021	HMA SHOULDERS 6	SQ YD	359.000	=			
48203029	HMA SHOULDERS 8	SQ YD	1,300.000	=			
48301000	PROTECTIVE COAT	SQ YD	15,264.000	=			
50105220	PIPE CULVERT REMOV	FOOT	215.000	=			
50200100	STRUCTURE EXCAVATION	CU YD	756.000	=			
50200300	COFFERDAM EXCAVATION	CU YD	1,458.000	=			
50201121	COFFERDAM TYP 2 LOC 1	EACH	1.000	=			

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ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	CTS
				DOLLARS	CENTS		
50201122	COFFERDAM TYP 2 LOC 2	EACH	1.000	=			
50201123	COFFERDAM TYP 2 LOC 3	EACH	1.000	=			
50201124	COFFERDAM TYP 2 LOC 4	EACH	1.000	=			
50201125	COFFERDAM TYP 2 LOC 5	EACH	1.000	=			
50300225	CONC STRUCT	CU YD	2,457.000	=			
50300255	CONC SUP-STR	CU YD	1,465.100	=			
50300260	BR DECK GROOVING	SQ YD	4,860.000	=			
50300265	SEAL COAT CONC	CU YD	733.600	=			
50300280	CONCRETE ENCASUREMENT	CU YD	14.200	=			
50300300	PROTECTIVE COAT	SQ YD	6,139.000	=			
50500505	STUD SHEAR CONNECTORS	EACH	14,277.000	=			
50800205	REINF BARS, EPOXY CTD	POUND	733,090.000	=			
50800515	BAR SPLICERS	EACH	91.000	=			
51201600	FUR STL PILE HP12X53	FOOT	2,808.000	=			
51201800	FUR STL PILE HP14X73	FOOT	8,866.000	=			

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ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	CTS
				DOLLARS	CENTS		
51202305	DRIVING PILES	FOOT	11,674.000	X	=		
51203600	TEST PILE ST HP12X53	EACH	6.000	X	=		
51203800	TEST PILE ST HP14X73	EACH	5.000	X	=		
51204650	PILE SHOES	EACH	230.000	X	=		
51500100	NAME PLATES	EACH	2.000	X	=		
52000110	PREF JT STRIP SEAL	FOOT	39.000	X	=		
52100020	ELAST BEARING ASSY T2	EACH	12.000	X	=		
52100520	ANCHOR BOLTS	EACH	164.000	X	=		
52100530	ANCHOR BOLTS	EACH	8.000	X	=		
52100540	ANCHOR BOLTS	EACH	40.000	X	=		
542D0217	P CUL CL D 1	FOOT	125.000	X	=		
54213660	PRC FLAR END SEC 15	EACH	11.000	X	=		
54213663	PRC FLAR END SEC 18	EACH	2.000	X	=		
54213687	PRC FLAR END SEC 42	EACH	1.000	X	=		
54213867	STEEL END SEC 12	EACH	12.000	X	=		

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ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	CTS
				DOLLARS	CENTS		
54247100	GRATING-C FL END S 15	EACH	11.000				
54247110	GRATING-C FL END S 18	EACH	2.000				
54247180	GRATING-C FL END S 42	EACH	1.000				
54248510	CONCRETE COLLAR	CU YD	1.000				
550A0070	STORM SEW CL A 1 15	FOOT	270.000				
550A0340	STORM SEW CL A 2 12	FOOT	406.000				
550A0360	STORM SEW CL A 2 15	FOOT	128.000				
550A0380	STORM SEW CL A 2 18	FOOT	671.000				
550A0470	STORM SEW CL A 2 42	FOOT	48.000				
550A2530	SS RG CL A 2 15	FOOT	294.000				
550A2540	SS RG CL A 2 18	FOOT	73.000				
55100700	STORM SEWER REM 15	FOOT	670.000				
56103300	D I WATER MAIN 12	FOOT	3,518.000				
56103400	D I WATER MAIN 16	FOOT	1,893.000				
56105200	WATER VALVES 12	EACH	5.000				

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ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE
				DOLLARS	CENTS	
56105300	WATER VALVES 16	EACH	6.000	=		
56109100	TAP VALVE & SLEEVE 12	EACH	1.000	=		
56109200	TAP VALVE & SLEEVE 16	EACH	1.000	=		
56400710	FIRE HYDNT & VAL SPL	EACH	10.000	=		
58700300	CONCRETE SEALER	SQ FT	1,634.000	=		
59100100	GEOCOMPOSITE WALL DR	SQ YD	97.000	=		
60200805	CB TA 4 DIA T8G	EACH	5.000	=		
60201340	CB TA 4 DIA T24F&G	EACH	43.000	=		
60207605	CB TC T8G	EACH	2.000	=		
60218400	MAN TA 4 DIA T1F CL	EACH	22.000	=		
60500050	REMOV CATCH BAS	EACH	2.000	=		
60500060	REMOV INLETS	EACH	3.000	=		
60603800	COMB CC&G TB6.12	FOOT	26.000	=		
60605000	COMB CC&G TB6.24	FOOT	7,200.000	=		
63000001	SPBGR TY A 6FT POSTS	FOOT	447.000	=		

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ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	CTS
				DOLLARS	CENTS		
63100085	TRAF BAR TERM T6	EACH	4.000	=			
63100169	TR BAR TRM T1 SPL FLR	EACH	4.000	=			
66900200	NON SPL WASTE DISPOSL	CU YD	240.000	=			
66900450	SPL WASTE PLNS/REPORT	L SUM	1.000	=			
66900530	SOIL DISPOSAL ANALY	EACH	2.000	=			
67100100	MOBILIZATION	L SUM	1.000	=			
70106800	CHANGEABLE MESSAGE SN	CAL MD	20.000	=			
70300510	PAVT MARK TAPE T3 L&S	SQ FT	182.000	=			
70300520	PAVT MARK TAPE T3 4	FOOT	26,657.000	=			
70300540	PAVT MARK TAPE T3 6	FOOT	2,018.000	=			
70300560	PAVT MARK TAPE T3 12	FOOT	883.000	=			
70300570	PAVT MARK TAPE T3 24	FOOT	106.000	=			
70301000	WORK ZONE PAVT MK REM	SQ FT	11,089.000	=			
70400100	TEMP CONC BARRIER	FOOT	980.000	=			
70400200	REL TEMP CONC BARRIER	FOOT	300.000	=			

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ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	CTS
				DOLLARS	CENTS		
72000100	SIGN PANEL T1	SQ FT	235.000	=			
72000200	SIGN PANEL T2	SQ FT	50.000	=			
72400100	REMOV SIN PAN ASSY TA	EACH	5.000	=			
72400200	REMOV SIN PAN ASSY TB	EACH	5.000	=			
72400500	RELOC SIN PAN ASSY TA	EACH	1.000	=			
72400600	RELOC SIN PAN ASSY TB	EACH	1.000	=			
72800100	TELES STL SIN SUPPORT	FOOT	436.000	=			
78000100	THPL PVT MK LTR & SYM	SQ FT	728.000	=			
78000200	THPL PVT MK LINE 4	FOOT	18,386.000	=			
78000400	THPL PVT MK LINE 6	FOOT	2,655.000	=			
78000600	THPL PVT MK LINE 12	FOOT	159.000	=			
78000650	THPL PVT MK LINE 24	FOOT	290.000	=			
78008200	POLYUREA PM T1 LTR-SY	SQ FT	292.000	=			
78008210	POLYUREA PM T1 LN 4	FOOT	14,451.000	=			
78008230	POLYUREA PM T1 LN 6	FOOT	1,299.000	=			

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ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE
				DOLLARS	CENTS	
78008250	POLYUREA PM T1 LN 12	FOOT	201.000			
78100100	RAISED REFL PAVT MKR	EACH	369.000			
78100105	RAISED REF PVT MKR BR	EACH	68.000			
78200410	GUARDRAIL MKR TYPE A	EACH	6.000			
78200530	BAR WALL MKR TYPE C	EACH	40.000			
78201000	TERMINAL MARKER - DA	EACH	4.000			
78300100	PAVT MARKING REMOVAL	SQ FT	5,874.000			
78300200	RAISED REF PVT MK REM	EACH	109.000			
80500010	SERV INSTALL GRND MT	EACH	2.000			
81023750	CON ENC C 3 PVC	FOOT	70.000			
81024600	CON ENC C 6 PVC 1X1	FOOT	560.000			
81026200	CON ENC RC 6 PVC 3X2	FOOT	250.000			
81026464	CON ENC RC 6 PVC 3X4	FOOT	2,057.000			
81028200	UNDRGRD C GALVS 2	FOOT	3,851.000			
81028210	UNDRGRD C GALVS 2 1/2	FOOT	76.000			

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ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	CTS
				DOLLARS	CENTS		
81028220	UNDRGRD C GALVS 3	FOOT	108.000				
81028240	UNDRGRD C GALVS 4	FOOT	618.000				
81028350	UNDRGRD C PVC 2	FOOT	2,709.000				
81028720	UNDRGRD C CNC 1	FOOT	460.000				
81100605	CON AT ST 2 PVC GALVS	FOOT	1,207.000				
81101205	CON AT ST 6 PVC GALVS	FOOT	13,740.000				
81200210	CON EMB STR 1 PVC	FOOT	322.000				
81200230	CON EMB STR 2 PVC	FOOT	240.000				
81300420	JUN BX SS AS 10X8X6	EACH	19.000				
81300610	JUN BX SS AS 14X12X6	EACH	2.000				
81400100	HANDHOLE	EACH	18.000				
81400200	HD HANDHOLE	EACH	7.000				
81400300	DBL HANDHOLE	EACH	2.000				
81702120	EC C XLP USE 1C 8	FOOT	5,587.000				
81702130	EC C XLP USE 1C 6	FOOT	11,857.000				

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ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	CTS
				DOLLARS	CENTS		
81702150	EC C XLP USE 1C 2	FOOT	129.000				
82102250	LUM SV HOR MT 250W	EACH	21.000				
82500350	LT CONT BASEM 240V100	EACH	2.000				
83050825	LT P A 47.5MH 15DA	EACH	21.000				
83600200	LIGHT POLE FDN 24D	FOOT	147.000				
85700200	FAC T4 CAB	EACH	1.000				
85700300	FAC T5 CAB	EACH	1.000				
86000100	MASTER CONTROLLER	EACH	1.000				
86200200	UNINTER POWER SUP STD	EACH	2.000				
86400100	TRANSCIEVER - FIB OPT	EACH	2.000				
87100020	F0CC62.5/125 MM12SM12	FOOT	3,436.000				
87300925	ELCBL C TRACER 14 1C	FOOT	3,436.000				
87301215	ELCBL C SIGNAL 14 2C	FOOT	597.000				
87301225	ELCBL C SIGNAL 14 3C	FOOT	597.000				
87301245	ELCBL C SIGNAL 14 5C	FOOT	1,876.000				

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ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE
				DOLLARS	CENTS	
87301255	ELCBL C SIGNAL 14 7C	FOOT	1,988.000	X	=	
87301305	ELCBL C LEAD 14 1PR	FOOT	4,593.000	X	=	
87301805	ELCBL C SERV 6 2C	FOOT	208.000	X	=	
87301900	ELCBL C EGRDC 6 1C	FOOT	898.000	X	=	
87502480	TS POST GALVS 14	EACH	1.000	X	=	
87502500	TS POST GALVS 16	EACH	3.000	X	=	
87700160	S MAA & P 24	EACH	1.000	X	=	
87700200	S MAA & P 32	EACH	1.000	X	=	
87700230	S MAA & P 38	EACH	1.000	X	=	
87700290	S MAA & P 50	EACH	1.000	X	=	
87700320	S MAA & P 55	EACH	1.000	X	=	
87700400	S MAA & P 60	EACH	1.000	X	=	
87700408	S MAA & P 64	EACH	1.000	X	=	
87800100	CONC FDN TY A	FOOT	16.000	X	=	
87800150	CONC FDN TY C	FOOT	8.000	X	=	

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ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	CTS
				DOLLARS	CENTS		
87800400	CONC FDN TY E 30D	FOOT	24.000	X	=		
87800415	CONC FDN TY E 36D	FOOT	41.000	X	=		
87800420	CONC FDN TY E 42D	FOOT	42.000	X	=		
88030020	SH LED 1F 3S MAM	EACH	9.000	X	=		
88030050	SH LED 1F 3S BM	EACH	3.000	X	=		
88030100	SH LED 1F 5S BM	EACH	5.000	X	=		
88030110	SH LED 1F 5S MAM	EACH	5.000	X	=		
88102717	PED SH LED 1F BM CDT	EACH	2.000	X	=		
88200210	TS BACKPLATE LOU ALUM	EACH	14.000	X	=		
88500100	INDUCTIVE LOOP DETECT	EACH	21.000	X	=		
88600100	DET LOOP T1	FOOT	2,556.000	X	=		
88700200	LIGHT DETECTOR	EACH	7.000	X	=		
88700300	LIGHT DETECTOR AMP	EACH	2.000	X	=		
88800100	PED PUSH-BUTTON	EACH	2.000	X	=		
89000100	TEMP TR SIG INSTALL	EACH	1.000	X	=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
89502375	REMOV EX TS EQUIP	EACH	1.000		=		
89502380	REMOV EX HANDHOLE	EACH	8.000		=		
89502385	REMOV EX CONC FDN	EACH	7.000		=		
TOTAL				\$			

NOTE:

1. EACH PAY ITEM SHOULD HAVE A UNIT PRICE AND A TOTAL PRICE.
2. THE UNIT PRICE SHALL GOVERN IF NO TOTAL PRICE IS SHOWN OR IF THERE IS A DISCREPANCY BETWEEN THE PRODUCT OF THE UNIT PRICE MULTIPLIED BY THE QUANTITY.
3. IF A UNIT PRICE IS OMITTED, THE TOTAL PRICE WILL BE DIVIDED BY THE QUANTITY IN ORDER TO ESTABLISH A UNIT PRICE.
4. A BID MAY BE DECLARED UNACCEPTABLE IF NEITHER A UNIT PRICE NOR A TOTAL PRICE IS SHOWN.

RETURN WITH BID

6. **COMBINATION BIDS.** The undersigned further agrees that if awarded the contract for the sections contained in the following combination, he/she will perform the work in accordance with the requirements of each individual proposal comprising the combination bid specified in the schedule below, and that the combination bid shall be prorated against each section in proportion to the bid submitted for the same. If an error is found to exist in the gross sum bid for one or more of the individual sections included in a combination, the combination bid shall be corrected as provided in the specifications.

When a combination bid is submitted, the schedule below must be completed in each proposal comprising the combination.

If alternate bids are submitted for one or more of the sections comprising the combination, a combination bid must be submitted for each alternate.

Schedule of Combination Bids

Combination No.	Sections Included in Combination	Combination Bid	
		Dollars	Cents

7. **SCHEDULE OF PRICES.** The undersigned bidder submits herewith, in accordance with the rules and instructions, a schedule of prices for the items of work for which bids are sought. The unit prices bid are in U.S. dollars and cents, and all extensions and summations have been made. The bidder understands that the quantities appearing in the bid schedule are approximate and are provided for the purpose of obtaining a gross sum for the comparison of bids. If there is an error in the extension of the unit prices, the unit prices shall govern. Payment to the contractor awarded the contract will be made only for actual quantities of work performed and accepted or materials furnished according to the contract. The scheduled quantities of work to be done and materials to be furnished may be increased, decreased or omitted as provided elsewhere in the contract.

8. **AUTHORITY TO DO BUSINESS IN ILLINOIS.** Section 20-43 of the Illinois Procurement Code (30 ILCS 500/20-43) provides that a person (other than an individual acting as a sole proprietor) must be a legal entity authorized to do business in the State of Illinois prior to submitting the bid.

9. **The services of a subcontractor will or may be used.**

Check box Yes
 Check box No

For known subcontractors with subcontracts with an annual value of more than \$25,000, the contract shall include their name, address, and the dollar allocation for each subcontractor.

10. **EXECUTION OF CONTRACT:** The Department of Transportation will, in accordance with the rules governing Department procurements, execute the contract and shall be the sole entity having the authority to accept performance and make payments under the contract. Execution of the contract by the Chief Procurement Officer or the State Purchasing Officer is for approval of the procurement process and execution of the contract by the Department. Neither the Chief Procurement Officer nor the State Purchasing Officer shall be responsible for administration of the contract or determinations respecting performance or payment there under except as otherwise permitted in the Illinois Procurement Code.

RETURN WITH BID

STATE REQUIRED ETHICAL STANDARDS GOVERNING CONTRACT PROCUREMENT: ASSURANCES, CERTIFICATIONS AND DISCLOSURES

I. GENERAL

A. Article 50 of the Illinois Procurement Code establishes the duty of all State chief procurement officers, State purchasing officers, and their designees to maximize the value of the expenditure of public moneys in procuring goods, services, and contracts for the State of Illinois and to act in a manner that maintains the integrity and public trust of State government. In discharging this duty, they are charged by law to use all available information, reasonable efforts, and reasonable actions to protect, safeguard, and maintain the procurement process of the State of Illinois.

B. In order to comply with the provisions of Article 50 and to carry out the duty established therein, all bidders are to adhere to ethical standards established for the procurement process, and to make such assurances, disclosures and certifications required by law. Except as otherwise required in subsection III, paragraphs J-M, by execution of the Proposal Signature Sheet, the bidder indicates that each of the mandated assurances have been read and understood, that each certification is made and understood, and that each disclosure requirement has been understood and completed.

C. In addition to all other remedies provided by law, failure to comply with any assurance, failure to make any disclosure or the making of a false certification shall be grounds for the chief procurement officer to void the contract, or subcontract, and may result in the suspension or debarment of the bidder or subcontractor.

II. ASSURANCES

The assurances hereinafter made by the bidder are each a material representation of fact upon which reliance is placed should the Department enter into the contract with the bidder.

A. Conflicts of Interest

1. The Illinois Procurement Code provides in pertinent part:

Section 50-13. Conflicts of Interest.

(a) Prohibition. It is unlawful for any person holding an elective office in this State, holding a seat in the General Assembly, or appointed to or employed in any of the offices or agencies of state government and who receives compensation for such employment in excess of 60% of the salary of the Governor of the State of Illinois, or who is an officer or employee of the Capital Development Board or the Illinois Toll Highway Authority, or who is the spouse or minor child of any such person to have or acquire any contract, or any direct pecuniary interest in any contract therein, whether for stationery, printing, paper, or any services, materials, or supplies, that will be wholly or partially satisfied by the payment of funds appropriated by the General Assembly of the State of Illinois or in any contract of the Capital Development Board or the Illinois Toll Highway authority.

(b) Interests. It is unlawful for any firm, partnership, association or corporation, in which any person listed in subsection (a) is entitled to receive (i) more than 7 1/2% of the total distributable income or (ii) an amount in excess of the salary of the Governor, to have or acquire any such contract or direct pecuniary interest therein.

(c) Combined interests. It is unlawful for any firm, partnership, association, or corporation, in which any person listed in subsection (a) together with his or her spouse or minor children is entitled to receive (i) more than 15%, in the aggregate, of the total distributable income or (ii) an amount in excess of 2 times the salary of the Governor, to have or acquire any such contract or direct pecuniary interest therein.

(d) Securities. Nothing in this Section invalidates the provisions of any bond or other security previously offered or to be offered for sale or sold by or for the State of Illinois.

(e) Prior interests. This Section does not affect the validity of any contract made between the State and an officer or employee of the State or member of the General Assembly, his or her spouse, minor child or any combination of those persons if that contract was in existence before his or her election or employment as an officer, member, or employee. The contract is voidable, however, if it cannot be completed within 365 days after the officer, member, or employee takes office or is employed.

The current salary of the Governor is \$177,412.00. Sixty percent of the salary is \$106,447.20.

RETURN WITH BID

2. The bidder assures the Department that the award and execution of the contract would not cause a violation of Section 50-13, or that an effective exemption has been issued by the Board of Ethics to any individual subject to the Section 50-13 prohibitions pursuant to the provisions of Section 50-20 of the Code and Executive Order Number 3 (1998). Information concerning the exemption process is available from the Department upon request.

B. Negotiations

1. The Illinois Procurement Code provides in pertinent part:

Section 50-15. Negotiations.

(a) It is unlawful for any person employed in or on a continual contractual relationship with any of the offices or agencies of State government to participate in contract negotiations on behalf of that office or agency with any firm, partnership, association, or corporation with whom that person has a contract for future employment or is negotiating concerning possible future employment.

2. The bidder assures the Department that the award and execution of the contract would not cause a violation of Section 50-15, and that the bidder has no knowledge of any facts relevant to the kinds of acts prohibited therein.

C. Inducements

1. The Illinois Procurement Code provides:

Section 50-25. Inducement. Any person who offers or pays any money or other valuable thing to any person to induce him or her not to bid for a State contract or as recompense for not having bid on a State contract is guilty of a Class 4 felony. Any person who accepts any money or other valuable thing for not bidding for a State contract or who withholds a bid in consideration of the promise for the payment of money or other valuable thing is guilty of a Class 4 felony.

2. The bidder assures the Department that the award and execution of the contract would not cause a violation of Section 50-25, and that the bidder has no knowledge of any facts relevant to the kinds of acts prohibited therein.

D. Revolving Door Prohibition

1. The Illinois Procurement Code provides:

Section 50-30. Revolving door prohibition. Chief procurement officers, State purchasing officers, procurement compliance monitors, their designees whose principal duties are directly related to State procurement, and executive officers confirmed by the Senate are expressly prohibited for a period of 2 years after terminating an affected position from engaging in any procurement activity relating to the State agency most recently employing them in an affected position for a period of at least 6 months. The prohibition includes, but is not limited to: lobbying the procurement process; specifying; bidding; proposing bid, proposal, or contract documents; on their own behalf or on behalf of any firm, partnership, association, or corporation. This Section applies only to persons who terminate an affected position on or after January 15, 1999.

2. The bidder assures the Department that the award and execution of the contract would not cause a violation of Section 50-30, and that the bidder has no knowledge of any facts relevant to the kinds of acts prohibited therein.

E. Reporting Anticompetitive Practices

1. The Illinois Procurement Code provides:

Section 50-40. Reporting anticompetitive practices. When, for any reason, any vendor, bidder, contractor, chief procurement officer, State purchasing officer, designee, elected official, or State employee suspects collusion or other anticompetitive practice among any bidders, offerors, contractors, proposers, or employees of the State, a notice of the relevant facts shall be transmitted to the Attorney General and the chief procurement officer.

2. The bidder assures the Department that it has not failed to report any relevant facts concerning the practices addressed in Section 50-40 which may involve the contract for which the bid is submitted.

F. Confidentiality

1. The Illinois Procurement Code provides:

Section 50-45. Confidentiality. Any chief procurement officer, State purchasing officer, designee, or executive officer who willfully uses or allows the use of specifications, competitive bid documents, proprietary competitive information, proposals, contracts, or selection information to compromise the fairness or integrity of the procurement, bidding, or contract process shall be subject to immediate dismissal, regardless of the Personnel code, any contract, or any collective bargaining agreement, and may in addition be subject to criminal prosecution.

2. The bidder assures the Department that it has no knowledge of any fact relevant to the practices addressed in Section 50-45 which may involve the contract for which the bid is submitted.

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G. Insider Information

1. The Illinois Procurement Act provides:

Section 50-50. Insider information. It is unlawful for any current or former elected or appointed State official or State employee to knowingly use confidential information available only by virtue of that office or employment for actual or anticipated gain for themselves or another person.

2. The bidder assures the Department that it has no knowledge of any facts relevant to the practices addressed in Section 50-50 which may involve the contract for which the bid is submitted.

III. CERTIFICATIONS

The certifications hereinafter made by the bidder are each a material representation of fact upon which reliance is placed should the Department enter into the contract with the bidder. Section 50-2 of the Illinois Procurement Code provides that every person that has entered into a multi-year contract and every subcontractor with a multi-year subcontract shall certify, by July 1 of each fiscal year covered by the contract after the initial fiscal year, to the responsible chief procurement officer whether it continues to satisfy the requirements of Article 50 pertaining to the eligibility for a contract award. If a contractor or subcontractor is not able to truthfully certify that it continues to meet all requirements, it shall provide with its certification a detailed explanation of the circumstances leading to the change in certification status. A contractor or subcontractor that makes a false statement material to any given certification required under Article 50 is, in addition to any other penalties or consequences prescribed by law, subject to liability under the Whistleblower Reward and Protection Act for submission of a false claim.

A. Bribery

1. The Illinois Procurement Code provides:

Section 50-5. Bribery.

(a) Prohibition. No person or business shall be awarded a contract or subcontract under this Code who:

(1) has been convicted under the laws of Illinois or any other state of bribery or attempting to bribe an officer or employee of the State of Illinois or any other state in that officer's or employee's official capacity; or

(2) has made an admission of guilt of that conduct that is a matter of record but has not been prosecuted for that conduct.

(b) Businesses. No business shall be barred from contracting with any unit of State or local government, or subcontracting under such a contract, as a result of a conviction under this Section of any employee or agent of the business if the employee or agent is no longer employed by the business and:

(1) the business has been finally adjudicated not guilty; or

(2) the business demonstrates to the governmental entity with which it seeks to contract, or which is signatory to the contract which the subcontract relates, and that entity finds that the commission of the offense was not authorized, requested, commanded, or performed by a director, officer, or high managerial agent on behalf of the business as provided in paragraph (2) of subsection (a) of Section 5-4 of the Criminal Code of 1961.

(c) Conduct on behalf of business. For purposes of this Section, when an official, agent, or employee of a business committed the bribery or attempted bribery on behalf of the business and in accordance with the direction or authorization of a responsible official of the business, the business shall be chargeable with the conduct.

(d) Certification. Every bid submitted to and contract executed by the State, and every subcontract subject to Section 20-120 of the Procurement Code shall contain a certification by the contractor or the subcontractor, respectively, that the contractor or subcontractor is not barred from being awarded a contract or subcontract under this Section and acknowledges that the chief procurement officer may declare the related contract void if any certifications required by this Section are false. A contractor who makes a false statement, material to the certification, commits a Class 3 felony.

2. The contractor or subcontractor certifies that it is not barred from being awarded a contract under Section 50.5.

B. Felons

1. The Illinois Procurement Code provides:

Section 50-10. Felons. Unless otherwise provided, no person or business convicted of a felony shall do business with the State of Illinois or any State agency, or enter into a subcontract, from the date of conviction until 5 years after the date of completion of the sentence for that felony, unless no person held responsible by a prosecutorial office for the facts upon which the conviction was based continues to have any involvement with the business.

1. Certification. Every bid submitted to and contract executed by the State and every subcontract subject to Section 20-120 of the Procurement Code shall contain a certification by the bidder or contractor or subcontractor, respectively, that the bidder, contractor, or subcontractor is not barred from being awarded a contract or subcontract under this Section and acknowledges that the chief procurement officer may declare the related contract void if any of the certifications required by this Section are false.

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C. Debt Delinquency

1. The Illinois Procurement Code provides:

Section 50-11 and 50-12. Debt Delinquency.

The contractor or bidder or subcontractor, respectively, certifies that it, or any affiliate, is not barred from being awarded a contract or subcontract under the Procurement Code. Section 50-11 prohibits a person from entering into a contract with a State agency, or entering into a subcontract, if it knows or should know that it, or any affiliate, is delinquent in the payment of any debt to the State as defined by the Debt Collection Board. Section 50-12 prohibits a person from entering into a contract with a State agency, or entering into a subcontract, if it, or any affiliate, has failed to collect and remit Illinois Use Tax on all sales of tangible personal property into the State of Illinois in accordance with the provisions of the Illinois Use Tax Act. The bidder or contractor or subcontractor, respectively, further acknowledges that the chief procurement officer may declare the related contract void if this certification is false or if the bidder, contractor, or subcontractor, or any affiliate, is determined to be delinquent in the payment of any debt to the State during the term of the contract.

D. Prohibited Bidders, Contractors and Subcontractors

1. The Illinois Procurement Code provides:

Section 50-10.5 and 50-60(c). Prohibited bidders, contractors and subcontractors.

The bidder or contractor or subcontractor, respectively, certifies in accordance with 30 ILCS 500/50-10.5 that no officer, director, partner or other managerial agent of the contracting business has been convicted of a felony under the Sarbanes-Oxley Act of 2002 or a Class 3 or Class 2 felony under the Illinois Securities Law of 1953 or if in violation of Subsection (c) for a period of five years from the date of conviction. Every bid submitted to and contract executed by the State and every subcontract subject to Section 20-120 of the Procurement Code shall contain a certification by the bidder, contractor, or subcontractor, respectively, that the bidder, contractor, or subcontractor is not barred from being awarded a contract or subcontract under this Section and acknowledges that the chief procurement officer shall declare the related contract void if any of the certifications completed pursuant to this Section are false.

E. Section 42 of the Environmental Protection Act

The bidder or contractor or subcontractor, respectively, certifies in accordance with 30 ILCS 500/50-12 that the bidder, contractor, or subcontractor, is not barred from being awarded a contract or entering into a subcontract under this Section which prohibits the bidding on or entering into contracts with the State of Illinois or a State agency, or entering into any subcontract, that is subject to the Procurement Code by a person or business found by a court or the Pollution Control Board to have committed a willful or knowing violation of Section 42 of the Environmental Protection Act for a period of five years from the date of the order. The bidder or contractor or subcontractor, respectively, acknowledges that the chief procurement officer may declare the contract void if this certification is false.

F. Educational Loan

1. Section 3 of the Educational Loan Default Act provides:

§ 3. No State agency shall contract with an individual for goods or services if that individual is in default, as defined in Section 2 of this Act, on an educational loan. Any contract used by any State agency shall include a statement certifying that the individual is not in default on an educational loan as provided in this Section.

2. The bidder, if an individual as opposed to a corporation, partnership or other form of business organization, certifies that the bidder is not in default on an educational loan as provided in Section 3 of the Act.

G. Bid-Rigging/Bid Rotating

1. Section 33E-11 of the Criminal Code of 1961 provides:

§ 33E-11. (a) Every bid submitted to and public contract executed pursuant to such bid by the State or a unit of local government shall contain a certification by the prime contractor that the prime contractor is not barred from contracting with any unit of State or local government as a result of a violation of either Section 33E-3 or 33E-4 of this Article. The State and units of local government shall provide the appropriate forms for such certification.

(b) A contractor who makes a false statement, material to the certification, commits a Class 3 felony.

A violation of Section 33E-3 would be represented by a conviction of the crime of bid-rigging which, in addition to Class 3 felony sentencing, provides that any person convicted of this offense or any similar offense of any state or the United States which contains the same elements as this offense shall be barred for 5 years from the date of conviction from contracting with any unit of State or local government. No corporation shall be barred from contracting with any unit of State or local government as a result of a conviction under this Section of any employee or agent of such corporation if the employee so convicted is no longer employed by the corporation and: (1) it has been finally adjudicated not guilty or (2) if it demonstrates to the governmental entity with which it seeks to contract and that entity finds that the commission of the offense was neither authorized, requested, commanded, nor performed by a director, officer or a high managerial agent in behalf of the corporation.

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A violation of Section 33E-4 would be represented by a conviction of the crime of bid-rotating which, in addition to Class 2 felony sentencing, provides that any person convicted of this offense or any similar offense of any state or the United States which contains the same elements as this offense shall be permanently barred from contracting with any unit of State or local government. No corporation shall be barred from contracting with any unit of State or local government as a result of a conviction under this Section of any employee or agent of such corporation if the employee so convicted is no longer employed by the corporation and: (1) it has been finally adjudicated not guilty or (2) if it demonstrates to the governmental entity with which it seeks to contract and that entity finds that the commission of the offense was neither authorized, requested, commanded, nor performed by a director, officer or a high managerial agent in behalf of the corporation.

2. The bidder certifies that it is not barred from contracting with the Department by reason of a violation of either Section 33E-3 or Section 33E-4.

H. International Anti-Boycott

1. Section 5 of the International Anti-Boycott Certification Act provides:

§ 5. State contracts. Every contract entered into by the State of Illinois for the manufacture, furnishing, or purchasing of supplies, material, or equipment or for the furnishing of work, labor, or services, in an amount exceeding the threshold for small purchases according to the purchasing laws of this State or \$10,000.00, whichever is less, shall contain certification, as a material condition of the contract, by which the contractor agrees that neither the contractor nor any substantially-owned affiliated company is participating or shall participate in an international boycott in violation of the provisions of the U.S. Export Administration Act of 1979 or the regulations of the U.S. Department of Commerce promulgated under that Act.

2. The bidder makes the certification set forth in Section 5 of the Act.

I. Drug Free Workplace

1. The Illinois "Drug Free Workplace Act" applies to this contract and it is necessary to comply with the provisions of the "Act" if the contractor is a corporation, partnership, or other entity (including a sole proprietorship) which has 25 or more employees.

2. The bidder certifies that if awarded a contract in excess of \$5,000 it will provide a drug free workplace by:

(a) Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensation, possession or use of a controlled substance, including cannabis, is prohibited in the contractor's workplace; specifying the actions that will be taken against employees for violations of such prohibition; and notifying the employee that, as a condition of employment on such contract, the employee shall abide by the terms of the statement, and notify the employer of any criminal drug statute conviction for a violation occurring in the workplace no later than five (5) days after such conviction.

(b) Establishing a drug free awareness program to inform employees about the dangers of drug abuse in the workplace; the contractor's policy of maintaining a drug free workplace; any available drug counseling, rehabilitation, and employee assistance programs; and the penalties that may be imposed upon employees for drug violations.

(c) Providing a copy of the statement required by subparagraph (1) to each employee engaged in the performance of the contract and to post the statement in a prominent place in the workplace.

(d) Notifying the Department within ten (10) days after receiving notice from an employee or otherwise receiving actual notice of the conviction of an employee for a violation of any criminal drug statute occurring in the workplace.

(e) Imposing or requiring, within 30 days after receiving notice from an employee of a conviction or actual notice of such a conviction, an appropriate personnel action, up to and including termination, or the satisfactory participation in a drug abuse assistance or rehabilitation program approved by a federal, state or local health, law enforcement or other appropriate agency.

(f) Assisting employees in selecting a course of action in the event drug counseling, treatment, and rehabilitation is required and indicating that a trained referral team is in place.

(g) Making a good faith effort to continue to maintain a drug free workplace through implementation of the actions and efforts stated in this certification.

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J. Disclosure of Business Operations in Iran

Section 50-36 of the Illinois Procurement Code, 30ILCS 500/50-36 provides that each bid, offer, or proposal submitted for a State contract shall include a disclosure of whether or not the Company acting as the bidder, offeror, or proposing entity, or any of its corporate parents or subsidiaries, within the 24 months before submission of the bid, offer, or proposal had business operations that involved contracts with or provision of supplies or services to the Government of Iran, companies in which the Government of Iran has any direct or indirect equity share, consortiums or projects commissioned by the Government of Iran, or companies involved in consortiums or projects commissioned by the Government of Iran and either of the following conditions apply:

- (1) More than 10% of the Company's revenues produced in or assets located in Iran involve oil-related activities or mineral-extraction activities; less than 75% of the Company's revenues produced in or assets located in Iran involve contracts with or provision of oil-related or mineral-extraction products or services to the Government of Iran or a project or consortium created exclusively by that government; and the Company has failed to take substantial action.
(2) The Company has, on or after August 5, 1996, made an investment of \$20 million or more, or any combination of investments of at least \$10 million each that in the aggregate equals or exceeds \$20 million in any 12-month period, which directly or significantly contributes to the enhancement of Iran's ability to develop petroleum resources of Iran.

The terms "Business operations", "Company", "Mineral-extraction activities", "Oil-related activities", "Petroleum resources", and "Substantial action" are all defined in the Code.

Failure to make the disclosure required by the Code shall cause the bid, offer or proposal to be considered not responsive. The disclosure will be considered when evaluating the bid, offer, or proposal or awarding the contract. The name of each Company disclosed as doing business or having done business in Iran will be provided to the State Comptroller.

Check the appropriate statement:

/___/ Company has no business operations in Iran to disclose.

/___/ Company has business operations in Iran as disclosed the attached document.

K. Apprenticeship and Training Certification (Does not apply to federal aid projects)

In accordance with the provisions of Section 30-22 (6) of the Illinois Procurement Code, the bidder certifies that it is a participant, either as an individual or as part of a group program, in the approved apprenticeship and training programs applicable to each type of work or craft that the bidder will perform with its own forces. The bidder further certifies for work that will be performed by subcontract that each of its subcontractors submitted for approval either (a) is, at the time of such bid, participating in an approved, applicable apprenticeship and training program; or (b) will, prior to commencement of performance of work pursuant to this contract, begin participation in an approved apprenticeship and training program applicable to the work of the subcontract. The Department, at any time before or after award, may require the production of a copy of each applicable Certificate of Registration issued by the United States Department of Labor evidencing such participation by the contractor and any or all of its subcontractors. Applicable apprenticeship and training programs are those that have been approved and registered with the United States Department of Labor. The bidder shall list in the space below, the official name of the program sponsor holding the Certificate of Registration for all of the types of work or crafts in which the bidder is a participant and that will be performed with the bidder's forces. Types of work or craft work that will be subcontracted shall be included and listed as subcontract work. The list shall also indicate any type of work or craft job category that does not have an applicable apprenticeship or training program. The bidder is responsible for making a complete report and shall make certain that each type of work or craft job category that will be utilized on the project as reported on the Construction Employee Workforce Projection (Form BC-1256) and returned with the bid is accounted for and listed.

NA-FEDERAL

The requirements of this certification and disclosure are a material part of the contract, and the contractor shall require this certification provision to be included in all approved subcontracts. In order to fulfill this requirement, it shall not be necessary that an applicable program sponsor be currently taking or that it will take applications for apprenticeship, training or employment during the performance of the work of this contract.

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L. Political Contributions and Registration with the State Board of Elections

Sections 20-160 and 50-37 of the Illinois Procurement Code regulate political contributions from business entities and any affiliated entities or affiliated persons bidding on or contracting with the state. Generally under Section 50-37, any business entity, and any affiliated entity or affiliated person of the business entity, whose current year contracts with all state agencies exceed an awarded value of \$50,000, are prohibited from making any contributions to any political committees established to promote the candidacy of the officeholder responsible for the awarding of the contracts or any other declared candidate for that office for the duration of the term of office of the incumbent officeholder or a period 2 years after the termination of the contract, whichever is longer. Any business entity and affiliated entities or affiliated persons whose state contracts in the current year do not exceed an awarded value of \$50,000, but whose aggregate pending bids and proposals on state contracts exceed \$50,000, either alone or in combination with contracts not exceeding \$50,000, are prohibited from making any political contributions to any political committee established to promote the candidacy of the officeholder responsible for awarding the pending contract during the period beginning on the date the invitation for bids or request for proposals is issued and ending on the day after the date of award or selection if the entity was not awarded or selected. Section 20-160 requires certification of registration of affected business entities in accordance with procedures found in Section 9-35 of The Election Code.

By submission of a bid, the contractor business entity acknowledges and agrees that it has read and understands Sections 20-160 and 50-37 of the Illinois Procurement Code, and that it makes the following certification:

The undersigned business entity certifies that it has registered as a business with the State Board of Elections and acknowledges a continuing duty to update the registration in accordance with the above referenced statutes. A copy of the certificate of registration shall be submitted with the bid. The bidder is cautioned that the Department will not award a contract without submission of the certificate of registration.

These requirements and compliance with the above referenced statutory sections are a material part of the contract, and any breach thereof shall be cause to void the contract under Section 50-60 of the Illinois Procurement Code. This provision does not apply to Federal-aid contracts.

M. Lobbyist Disclosure

Section 50-38 of the Illinois Procurement Code requires that any bidder or offeror on a State contract that hires a person required to register under the Lobbyist Registration Act to assist in obtaining a contract shall:

- (i) Disclose all costs, fees, compensation, reimbursements, and other remunerations paid or to be paid to the lobbyist related to the contract,
- (ii) Not bill or otherwise cause the State of Illinois to pay for any of the lobbyist's costs, fees, compensation, reimbursements, or other remuneration, and
- (iii) Sign a verification certifying that none of the lobbyist's costs, fees, compensation, reimbursements, or other remuneration were billed to the State.

This information, along with all supporting documents, shall be filed with the agency awarding the contract and with the Secretary of State. The chief procurement officer shall post this information, together with the contract award notice, in the online Procurement Bulletin.

Pursuant to Subsection (c) of this Section, no person or entity shall retain a person or entity to attempt to influence the outcome of a procurement decision made under the Procurement Code for compensation contingent in whole or in part upon the decision or procurement. Any person who violates this subsection is guilty of a business offense and shall be fined not more than \$10,000.

Bidder acknowledges that it is required to disclose the hiring of any person required to register pursuant to the Illinois Lobbyist Registration Act (25 ILCS 170) in connection with this contract.

Bidder has not hired any person required to register pursuant to the Illinois Lobbyist Registration Act in connection with this contract.

Or

Bidder has hired the following persons required to register pursuant to the Illinois Lobbyist Registration Act in connection with the contract:

Name and address of person: _____
All costs, fees, compensation, reimbursements and other remuneration paid to said person: _____

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IV. DISCLOSURES

- A. The disclosures hereinafter made by the bidder are each a material representation of fact upon which reliance is placed should the Department enter into the contract with the bidder. The bidder further certifies that the Department has received the disclosure forms for each bid.

The chief procurement officer may void the bid, contract, or subcontract, respectively, if it is later determined that the bidder or subcontractor rendered a false or erroneous disclosure. A contractor or subcontractor may be suspended or debarred for violations of the Procurement Code. Furthermore, the chief procurement officer may void the contract and the surety providing the performance bond shall be responsible for completion of the contract.

B. Financial Interests and Conflicts of Interest

1. Section 50-35 of the Illinois Procurement Code provides that all bids of more than \$25,000 shall be accompanied by disclosure of the financial interests of the bidder. This disclosed information for the successful bidder, will be maintained as public information subject to release by request pursuant to the Freedom of Information Act, filed with the Procurement Policy Board, and shall be incorporated as a material term of the contract. Furthermore, pursuant to Section 5-5, the Procurement Policy Board may review a proposal, bid, or contract and issue a recommendation to void a contract or reject a proposal or bid based on any violation of the Procurement Code or the existence of a conflict of interest as provided in subsections (b) and (d) of Section 50-35.

The financial interests to be disclosed shall include ownership or distributive income share that is in excess of 5%, or an amount greater than 60% of the annual salary of the Governor, of the bidding entity or its parent entity, whichever is less, unless the contractor or bidder is a publicly traded entity subject to Federal 10K reporting, in which case it may submit its 10K disclosure in place of the prescribed disclosure. If a bidder is a privately held entity that is exempt from Federal 10K reporting, but has more than 200 shareholders, it may submit the information that Federal 10K companies are required to report, and list the names of any person or entity holding any ownership share that is in excess of 5%. The disclosure shall include the names, addresses, and dollar or proportionate share of ownership of each person making the disclosure, their instrument of ownership or beneficial relationship, and notice of any potential conflict of interest resulting from the current ownership or beneficial interest of each person making the disclosure having any of the relationships identified in Section 50-35 and on the disclosure form.

The current annual salary of the Governor is \$177,412.00.

In addition, all disclosures shall indicate any other current or pending contracts, proposals, leases, or other ongoing procurement relationships the bidding entity has with any other unit of state government and shall clearly identify the unit and the contract, proposal, lease, or other relationship.

2. Disclosure Forms. Disclosure Form A is attached for use concerning the individuals meeting the above ownership or distributive share requirements. Subject individuals should be covered each by one form. In addition, a second form (Disclosure Form B) provides for the disclosure of current or pending procurement relationships with other (non-IDOT) state agencies. **The forms must be included with each bid.**

C. Disclosure Form Instructions

Form A Instructions for Financial Information & Potential Conflicts of Interest

If the bidder is a publicly traded entity subject to Federal 10K reporting, the 10K Report may be submitted to meet the requirements of Form A. If a bidder is a privately held entity that is exempt from Federal 10K reporting, but has more than 200 shareholders, it may submit the information that Federal 10K companies are required to report, and list the names of any person or entity holding any ownership share that is in excess of 5%. If a bidder is not subject to Federal 10K reporting, the bidder must determine if any individuals are required by law to complete a financial disclosure form. To do this, the bidder should answer each of the following questions. A "YES" answer indicates Form A must be completed. If the answer to each of the following questions is "NO", then the NOT APPLICABLE STATEMENT on Form A must be signed and dated by a person that is authorized to execute contracts for the bidding company. Note: These questions are for assistance only and are not required to be completed.

1. Does anyone in your organization have a direct or beneficial ownership share of greater than 5% of the bidding entity or parent entity? YES ___ NO ___
2. Does anyone in your organization have a direct or beneficial ownership share of less than 5%, but which has a value greater than 60% of the annual salary of the Governor? YES ___ NO ___
3. Does anyone in your organization receive more than 60% of the annual salary of the Governor of the bidding entity's or parent entity's distributive income? YES ___ NO ___
4. Does anyone in your organization receive greater than 5% of the bidding entity's or parent entity's total distributive income, but which is less than 60% of the annual salary of the Governor? YES ___ NO ___

(Note: Only one set of forms needs to be completed per person per bid even if a specific individual would require a yes answer to more than one question.)

A "YES" answer to any of these questions requires the completion of Form A. The bidder must determine each individual in the bidding entity or the bidding entity's parent company that would cause the questions to be answered "Yes". Each form must be signed and dated by a person that is authorized to execute contracts for your organization. **Photocopied or stamped signatures are not acceptable.** The person signing can be, but does not have to be, the person for which the form is being completed. The bidder is responsible for the accuracy of any information provided.

If the answer to each of the above questions is "NO", then the NOT APPLICABLE STATEMENT of Form A must be signed and dated by a person that is authorized to execute contracts for your company.

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Form B: Instructions for Identifying Other Contracts & Procurement Related Information

Disclosure Form B must be completed for each bid submitted by the bidding entity. *Note: Checking the NOT APPLICABLE STATEMENT on Form A does not allow the bidder to ignore Form B. Form B must be completed, checked, and dated or the bidder may be considered nonresponsive and the bid will not be accepted.*

The Bidder shall identify, by checking Yes or No on Form B, whether it has any pending contracts (including leases), bids, proposals, or other ongoing procurement relationship with any other (non-IDOT) State of Illinois agency. If "No" is checked, the bidder only needs to complete the check box on the bottom of Form B. If "Yes" is checked, the bidder must do one of the following:

Option I: If the bidder did not submit an Affidavit of Availability to obtain authorization to bid, the bidder must list all non-IDOT State of Illinois agency pending contracts, leases, bids, proposals, and other ongoing procurement relationships. These items may be listed on Form B or on an attached sheet(s). Do not include IDOT contracts. Contracts with cities, counties, villages, etc. are not considered State of Illinois agency contracts and are not to be included. Contracts with other State of Illinois agencies such as the Department of Natural Resources or the Capital Development Board must be included. Bidders who submit Affidavits of Availability are suggested to use Option II.

Option II: If the bidder is required and has submitted an Affidavit of Availability in order to obtain authorization to bid, the bidder may write or type "See Affidavit of Availability" which indicates that the Affidavit of Availability is incorporated by reference and includes all non-IDOT State of Illinois agency pending contracts, leases, bids, proposals, and other ongoing procurement relationships. For any contracts that are not covered by the Affidavit of Availability, the bidder must identify them on Form B or on an attached sheet(s). These might be such things as leases.

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**ILLINOIS DEPARTMENT
OF TRANSPORTATION**

**Form A
Financial Information &
Potential Conflicts of Interest
Disclosure**

Contractor Name		
Legal Address		
City, State, Zip		
Telephone Number	Email Address	Fax Number (if available)

Disclosure of the information contained in this Form is required by the Section 50-35 of the Illinois Procurement Code (30 ILCS 500). Vendors desiring to enter into a contract with the State of Illinois must disclose the financial information and potential conflict of interest information as specified in this Disclosure Form. This information shall become part of the publicly available contract file. This Form A must be completed for bids in excess of \$25,000, and for all open-ended contracts. **A publicly traded company may submit a 10K disclosure (or equivalent if applicable) in satisfaction of the requirements set forth in Form A. See Disclosure Form Instructions.**

The current annual salary of the Governor is \$177,412.00.

DISCLOSURE OF FINANCIAL INFORMATION

- 1. Disclosure of Financial Information.** The individual named below has an interest in the BIDDER (or its parent) in terms of ownership or distributive income share in excess of 5%, or an interest which has a value of more than 60% of the annual salary of the Governor. **(Make copies of this form as necessary and attach a separate Disclosure Form A for each individual meeting these requirements)**

FOR INDIVIDUAL (type or print information)	
NAME:	_____
ADDRESS	_____
Type of ownership/distributable income share:	
stock _____	sole proprietorship _____
Partnership _____	other: (explain on separate sheet): _____
% or \$ value of ownership/distributable income share: _____	

- 2. Disclosure of Potential Conflicts of Interest.** Check "Yes" or "No" to indicate which, if any, of the following potential conflict of interest relationships apply. If the answer to any question is "Yes", please attach additional pages and describe.

- (a) State employment, currently or in the previous 3 years, including contractual employment of services.
Yes ___ No ___

If your answer is yes, please answer each of the following questions.

- Are you currently an officer or employee of either the Capitol Development Board or the Illinois State Toll Highway Authority? Yes ___ No ___
- Are you currently appointed to or employed by any agency of the State of Illinois? If you are currently appointed to or employed by any agency of the State of Illinois, and your annual salary exceeds 60% of the annual salary of the Governor provide the name the State agency for which you are employed and your annual salary. _____

RETURN WITH BID

3. If you are currently appointed to or employed by any agency of the State of Illinois, and your annual salary exceeds 60% of the annual salary of the Governor, are you entitled to receive (i) more than 7 1/2% of the total distributable income of your firm, partnership, association or corporation, or (ii) an amount in excess of 100% of the annual salary of the Governor? Yes ___ No ___
4. If you are currently appointed to or employed by any agency of the State of Illinois, and your annual salary exceeds 60% of the annual salary of the Governor, are you and your spouse or minor children entitled to receive (i) more than 15% in aggregate of the total distributable income of your firm, partnership, association or corporation, or (ii) an amount in excess of two times the salary of the Governor? Yes ___ No ___

(b) State employment of spouse, father, mother, son, or daughter, including contractual employment for services in the previous 2 years.

Yes ___ No ___

If your answer is yes, please answer each of the following questions.

1. Is your spouse or any minor children currently an officer or employee of the Capitol Development Board or the Illinois State Toll Highway Authority? Yes ___ No ___
2. Is your spouse or any minor children currently appointed to or employed by any agency of the State of Illinois? If your spouse or minor children is/are currently appointed to or employed by any agency of the State of Illinois, and his/her annual salary exceeds 60% of the annual salary of the Governor, provide the name of the spouse and/or minor children, the name of the State agency for which he/she is employed and his/her annual salary. _____

-
3. If your spouse or any minor children is/are currently appointed to or employed by any agency of the State of Illinois, and his/her annual salary exceeds 60% of the annual salary of the Governor, are you entitled to receive (i) more than 7 1/2% of the total distributable income of your firm, partnership, association or corporation, or (ii) an amount in excess 100% of the annual salary of the Governor? Yes ___ No ___
4. If your spouse or any minor children are currently appointed to or employed by any agency of the State of Illinois, and his/her annual salary exceeds 60% of the annual salary of the Governor, are you and your spouse or any minor children entitled to receive (i) more than 15% in the aggregate of the total distributable income from your firm, partnership, association or corporation, or (ii) an amount in excess of two times the salary of the Governor? Yes ___ No ___

(c) Elective status; the holding of elective office of the State of Illinois, the government of the United States, any unit of local government authorized by the Constitution of the State of Illinois or the statutes of the State of Illinois currently or in the previous 3 years. Yes ___ No ___

(d) Relationship to anyone holding elective office currently or in the previous 2 years; spouse, father, mother, son, or daughter. Yes ___ No ___

(e) Appointive office; the holding of any appointive government office of the State of Illinois, the United State of America, or any unit of local government authorized by the Constitution of the State of Illinois or the statutes of the State of Illinois, which office entitles the holder to compensation in excess of the expenses incurred in the discharge of that office currently or in the previous 3 years. Yes ___ No ___

(f) Relationship to anyone holding appointive office currently or in the previous 2 years; spouse, father, mother, son, or daughter. Yes ___ No ___

(g) Employment, currently or in the previous 3 years, as or by any registered lobbyist of the State government. Yes ___ No ___

RETURN WITH BID

(h) Relationship to anyone who is or was a registered lobbyist in the previous 2 years; spouse, father, mother, son, or daughter. Yes ___ No ___

(i) Compensated employment, currently or in the previous 3 years, by any registered election or reelection committee registered with the Secretary of State or any county clerk of the State of Illinois, or any political action committee registered with either the Secretary of State or the Federal Board of Elections. Yes ___ No ___

(j) Relationship to anyone; spouse, father, mother, son, or daughter; who was a compensated employee in the last 2 years by any registered election or re-election committee registered with the Secretary of State or any county clerk of the State of Illinois, or any political action committee registered with either the Secretary of State or the Federal Board of Elections. Yes ___ No ___

3. Communication Disclosure.

Disclose the name and address of each lobbyist and other agent of the bidder or offeror who is not identified in Section 2 of this form, who is has communicated, is communicating, or may communicate with any State officer or employee concerning the bid or offer. This disclosure is a continuing obligation and must be promptly supplemented for accuracy throughout the process and throughout the term of the contract. If no person is identified, enter "None" on the line below:

Name and address of person(s): _____

RETURN WITH BID

4. Debarment Disclosure. For each of the persons identified under Sections 2 and 3 of this form, disclose whether any of the following has occurred within the previous 10 years: debarment from contracting with any governmental entity; professional licensure discipline; bankruptcies; adverse civil judgments and administrative findings; and criminal felony convictions. This disclosure is a continuing obligation and must be promptly supplemented for accuracy throughout the procurement process and term of the contract. If no person is identified, enter "None" on the line below:

Name of person(s): _____

Nature of disclosure: _____

APPLICABLE STATEMENT

This Disclosure Form A is submitted on behalf of the INDIVIDUAL named on previous page. Under penalty of perjury, I certify the contents of this disclosure to be true and accurate to the best of my knowledge.

Completed by: _____ Date _____
Signature of Individual or Authorized Representative

NOT APPLICABLE STATEMENT

Under penalty of perjury, I have determined that no individuals associated with this organization meet the criteria that would require the completion of this Form A.

This Disclosure Form A is submitted on behalf of the CONTRACTOR listed on the previous page.

_____ Date _____
Signature of Authorized Representative

The bidder has a continuing obligation to supplement these disclosures under Sec. 50-35 of the Procurement Code.

RETURN WITH BID

**ILLINOIS DEPARTMENT
OF TRANSPORTATION**

**Form B
Other Contracts &
Procurement Related Information
Disclosure**

Contractor Name		
Legal Address		
City, State, Zip		
Telephone Number	Email Address	Fax Number (if available)

Disclosure of the information contained in this Form is required by the Section 50-35 of the Illinois Procurement Act (30 ILCS 500). This information shall become part of the publicly available contract file. This Form B must be completed for bids in excess of \$25,000, and for all open-ended contracts.

DISCLOSURE OF OTHER CONTRACTS AND PROCUREMENT RELATED INFORMATION

1. Identifying Other Contracts & Procurement Related Information. The BIDDER shall identify whether it has any pending contracts (including leases), bids, proposals, or other ongoing procurement relationship with any other State of Illinois agency: Yes ___ No ___

If "No" is checked, the bidder only needs to complete the signature box on the bottom of this page.

2. If "Yes" is checked. Identify each such relationship by showing State of Illinois agency name and other descriptive information such as bid or project number (attach additional pages as necessary). SEE DISCLOSURE FORM INSTRUCTIONS:

THE FOLLOWING STATEMENT MUST BE CHECKED

<input type="checkbox"/>	_____	_____
	Signature of Authorized Representative	Date

RETURN WITH BID

SPECIAL NOTICE TO CONTRACTORS

The following requirements of the Illinois Department of Human Rights' Rules and Regulations are applicable to bidders on all construction contracts advertised by the Illinois Department of Transportation:

CONSTRUCTION EMPLOYEE UTILIZATION PROJECTION

- (a) All bidders on construction contracts shall complete and submit, along with and as part of their bids, a Bidder's Employee Utilization Form (Form BC-1256) setting forth a projection and breakdown of the total workforce intended to be hired and/or allocated to such contract work by the bidder including a projection of minority and female employee utilization in all job classifications on the contract project.
- (b) The Department of Transportation shall review the Employee Utilization Form, and workforce projections contained therein, of the contract awardee to determine if such projections reflect an underutilization of minority persons and/or women in any job classification in accordance with the Equal Employment Opportunity Clause and Section 7.2 of the Illinois Department of Human Rights' Rules and Regulations for Public Contracts adopted as amended on September 17, 1980. If it is determined that the contract awardee's projections reflect an underutilization of minority persons and/or women in any job classification, it shall be advised in writing of the manner in which it is underutilizing and such awardee shall be considered to be in breach of the contract unless, prior to commencement of work on the contract project, it submits revised satisfactory projections or an acceptable written affirmative action plan to correct such underutilization including a specific timetable geared to the completion stages of the contract.
- (c) The Department of Transportation shall provide to the Department of Human Rights a copy of the contract awardee's Employee Utilization Form, a copy of any required written affirmative action plan, and any written correspondence related thereto. The Department of Human Rights may review and revise any action taken by the Department of Transportation with respect to these requirements.



RETURN WITH BID

Contract No. 63650
KANE County
Section 04-00092-00-BR (St. Charles)
Project M-TE-CMM-HD-TCS-IL08(030)
Route RED GATE ROAD
District 1 Construction Funds

PART I. IDENTIFICATION

Dept. Human Rights # _____ Duration of Project: _____

Name of Bidder: _____

PART II. WORKFORCE PROJECTION

A. The undersigned bidder has analyzed minority group and female populations, unemployment rates and availability of workers for the location in which this contract work is to be performed, and for the locations from which the bidder recruits employees, and hereby submits the following workforce projection including a projection for minority and female employee utilization in all job categories in the workforce to be allocated to this contract:

TABLE A TOTAL Workforce Projection for Contract												TABLE B CURRENT EMPLOYEES TO BE ASSIGNED TO CONTRACT					
JOB CATEGORIES	TOTAL EMPLOYEES		MINORITY EMPLOYEES						TRAINEES				TOTAL EMPLOYEES		MINORITY EMPLOYEES		
			BLACK		HISPANIC		*OTHER MINOR.		APPREN- TICES		ON THE JOB TRAINEES						
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
OFFICIALS (MANAGERS)																	
SUPERVISORS																	
FOREMEN																	
CLERICAL																	
EQUIPMENT OPERATORS																	
MECHANICS																	
TRUCK DRIVERS																	
IRONWORKERS																	
CARPENTERS																	
CEMENT MASONS																	
ELECTRICIANS																	
PIPEFITTERS, PLUMBERS																	
PAINTERS																	
LABORERS, SEMI-SKILLED																	
LABORERS, UNSKILLED																	
TOTAL																	

TABLE C TOTAL Training Projection for Contract								
EMPLOYEES IN TRAINING	TOTAL EMPLOYEES		BLACK		HISPANIC		*OTHER MINOR.	
	M	F	M	F	M	F	M	F
APPRENTICES								
ON THE JOB TRAINEES								

*Other minorities are defined as Asians (A) or Native Americans (N).
Please specify race of each employee shown in Other Minorities column.

FOR DEPARTMENT USE ONLY

Note: See instructions on page 2

RETURN WITH BID

**Contract No. 63650
KANE County
Section 04-00092-00-BR (St. Charles)
Project M-TE-CMM-HD-TCS-IL08(030)
Route RED GATE ROAD
District 1 Construction Funds**

PART II. WORKFORCE PROJECTION - continued

- B. Included in "Total Employees" under Table A is the total number of **new hires** that would be employed in the event the undersigned bidder is awarded this contract.

The undersigned bidder projects that: (number) _____ new hires would be recruited from the area in which the contract project is located; and/or (number) _____ new hires would be recruited from the area in which the bidder's principal office or base of operation is located.

- C. Included in "Total Employees" under Table A is a projection of numbers of persons to be employed directly by the undersigned bidder as well as a projection of numbers of persons to be employed by subcontractors.

The undersigned bidder estimates that (number) _____ persons will be directly employed by the prime contractor and that (number) _____ persons will be employed by subcontractors.

PART III. AFFIRMATIVE ACTION PLAN

- A. The undersigned bidder understands and agrees that in the event the foregoing minority and female employee utilization projection included under **PART II** is determined to be an underutilization of minority persons or women in any job category, and in the event that the undersigned bidder is awarded this contract, he/she will, prior to commencement of work, develop and submit a written Affirmative Action Plan including a specific timetable (geared to the completion stages of the contract) whereby deficiencies in minority and/or female employee utilization are corrected. Such Affirmative Action Plan will be subject to approval by the contracting agency and the **Department of Human Rights**.
- B. The undersigned bidder understands and agrees that the minority and female employee utilization projection submitted herein, and the goals and timetable included under an Affirmative Action Plan if required, are deemed to be part of the contract specifications.

Company _____ Telephone Number _____

Address _____

NOTICE REGARDING SIGNATURE

The Bidder's signature on the Proposal Signature Sheet will constitute the signing of this form. The following signature block needs to be completed only if revisions are required.

Signature: _____ Title: _____ Date: _____

- Instructions: All tables must include subcontractor personnel in addition to prime contractor personnel.
- Table A - Include both the number of employees that would be hired to perform the contract work and the total number currently employed (Table B) that will be allocated to contract work, and include all apprentices and on-the-job trainees. The "Total Employees" column should include all employees including all minorities, apprentices and on-the-job trainees to be employed on the contract work.
 - Table B - Include all employees currently employed that will be allocated to the contract work including any apprentices and on-the-job trainees currently employed.
 - Table C - Indicate the racial breakdown of the total apprentices and on-the-job trainees shown in Table A.

RETURN WITH BID

ADDITIONAL FEDERAL REQUIREMENTS

In addition to the Required Contract Provisions for Federal-Aid Construction Contracts (FHWA 1273), all bidders make the following certifications.

- A. By the execution of this proposal, the signing bidder certifies that the bidding entity has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action, in restraint of free competitive bidding in connection with the submitted bid. This statement made by the undersigned bidder is true and correct under penalty of perjury under the laws of the United States.
- B. **CERTIFICATION, EQUAL EMPLOYMENT OPPORTUNITY:**
1. Have you participated in any previous contracts or subcontracts subject to the equal opportunity clause. YES _____ NO _____
 2. If answer to #1 is yes, have you filed with the Joint Reporting Committee, the Director of OFCC, any Federal agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements of those organizations? YES _____ NO _____

RETURN WITH BID

**Contract No. 63650
KANE County
Section 04-00092-00-BR (St. Charles)
Project M-TE-CMM-HD-TCS-IL08(030)
Route RED GATE ROAD
District 1 Construction Funds**

PROPOSAL SIGNATURE SHEET

The undersigned bidder hereby makes and submits this bid on the subject Proposal, thereby assuring the Department that all requirements of the Invitation for Bids and rules of the Department have been met, that there is no misunderstanding of the requirements of paragraph 3 of this Proposal, and that the contract will be executed in accordance with the rules of the Department if an award is made on this bid.

(IF AN INDIVIDUAL)

Firm Name _____
Signature of Owner _____
Business Address _____

(IF A CO-PARTNERSHIP)

Firm Name _____
By _____
Business Address _____
Name and Address of All Members of the Firm: _____

(IF A CORPORATION)

Corporate Name _____
By _____
Signature of Authorized Representative _____
Typed or printed name and title of Authorized Representative _____
Attest _____
Signature _____
(IF A JOINT VENTURE, USE THIS SECTION FOR THE MANAGING PARTY AND THE SECOND PARTY SHOULD SIGN BELOW)
Business Address _____

(IF A JOINT VENTURE)

Corporate Name _____
By _____
Signature of Authorized Representative _____
Typed or printed name and title of Authorized Representative _____
Attest _____
Signature _____
Business Address _____

If more than two parties are in the joint venture, please attach an additional signature sheet.



Return with Bid

Division of Highways
Proposal Bid Bond
(Effective November 1, 1992)

Item No. _____

Letting Date _____

KNOW ALL MEN BY THESE PRESENTS, That We _____

as PRINCIPAL, and _____

_____ as SURETY, are held jointly, severally and firmly bound unto the STATE OF ILLINOIS in the penal sum of 5 percent of the total bid price, or for the amount specified in the bid proposal under "Proposal Guaranty" in effect on the date of the Invitation for Bids, whichever is the lesser sum, well and truly to be paid unto said STATE OF ILLINOIS, for the payment of which we bind ourselves, our heirs, executors, administrators, successors and assigns.

THE CONDITION OF THE FOREGOING OBLIGATION IS SUCH, that whereas, the PRINCIPAL has submitted a bid proposal to the STATE OF ILLINOIS, acting through the Department of Transportation, for the improvement designated by the Transportation Bulletin Item Number and Letting Date indicated above.

NOW, THEREFORE, if the Department shall accept the bid proposal of the PRINCIPAL; and if the PRINCIPAL shall, within the time and as specified in the bidding and contract documents, submit a DBE Utilization Plan that is accepted and approved by the Department; and if, after award by the Department, the PRINCIPAL shall enter into a contract in accordance with the terms of the bidding and contract documents including evidence of the required insurance coverages and providing such bond as specified with good and sufficient surety for the faithful performance of such contract and for the prompt payment of labor and material furnished in the prosecution thereof; or if, in the event of the failure of the PRINCIPAL to make the required DBE submission or to enter into such contract and to give the specified bond, the PRINCIPAL pays to the Department the difference not to exceed the penalty hereof between the amount specified in the bid proposal and such larger amount for which the Department may contract with another party to perform the work covered by said bid proposal, then this obligation shall be null and void, otherwise, it shall remain in full force and effect.

IN THE EVENT the Department determines the PRINCIPAL has failed to comply with any requirement as set forth in the preceding paragraph, then Surety shall pay the penal sum to the Department within fifteen (15) days of written demand therefor. If Surety does not make full payment within such period of time, the Department may bring an action to collect the amount owed. Surety is liable to the Department for all its expenses, including attorney's fees, incurred in any litigation in which it prevails either in whole or in part.

In TESTIMONY WHEREOF, the said PRINCIPAL and the said SURETY have caused this instrument to be signed by their respective officers this _____ day of _____ A.D., _____.

PRINCIPAL

(Company Name)

SURETY

(Company Name)

By _____
(Signature & Title)

By: _____
(Signature of Attorney-in-Fact)

Notary Certification for Principal and Surety

STATE OF ILLINOIS,
County of _____

I, _____, a Notary Public in and for said County, do hereby certify that _____ and _____
(Insert names of individuals signing on behalf of PRINCIPAL & SURETY)

who are each personally known to me to be the same persons whose names are subscribed to the foregoing instrument on behalf of PRINCIPAL and SURETY, appeared before me this day in person and acknowledged respectively, that they signed and delivered said instrument as their free and voluntary act for the uses and purposes therein set forth.

Given under my hand and notarial seal this _____ day of _____ A.D. _____

My commission expires _____

Notary Public

In lieu of completing the above section of the Proposal Bid Form, the Principal may file an Electronic Bid Bond. By signing the proposal and marking the check box next to the Signature and Title line below, the Principal is ensuring the identified electronic bid bond has been executed and the Principal and Surety are firmly bound unto the State of Illinois under the conditions of the bid bond as shown above.

Electronic Bid Bond ID# Company / Bidder Name _____
Signature and Title

(1) Policy

It is public policy that disadvantageded businesses as defined in 49 CFR Part 26 and the Special Provision shall have the maximum opportunity to participate in the performance of contracts financed in whole or in part with Federal or State funds. Consequently the requirements of 49 CFR Part 26 apply to this contract.

(2) Obligation

The contractor agrees to ensure that disadvantageded businesses as defined in 49 CFR Part 26 and the Special Provision have the maximum opportunity to participate in the performance of contracts or subcontracts financed in whole or in part with Federal or State funds. The contractor shall take all necessary and reasonable steps in accordance with 49 CFR Part 26 and the Special Provision to ensure that said businesses have the maximum opportunity to compete for and perform under this contract. The contractor shall not discriminate on the basis of race, color, national origin or sex in the award and performance of contracts.

(3) Project and Bid Identification

Complete the following information concerning the project and bid:

Route _____	Total Bid _____
Section _____	Contract DBE Goal _____
Project _____	(Percent) (Dollar Amount)
County _____	
Letting Date _____	
Contract No. _____	
Letting Item No. _____	

(4) Assurance

I, acting in my capacity as an officer of the undersigned bidder (or bidders if a joint venture), hereby assure the Department that on this project my company : (check one)

Meets or exceeds contract award goals and has provided documented participation as follows:
Disadvantaged Business Participation _____ percent

Attached are the signed participation statements, forms SBE 2025, required by the Special Provision evidencing availability and use of each business participating in this plan and assuring that each business will perform a commercially useful function in the work of the contract.

Failed to meet contract award goals and has included good faith effort documentation to meet the goals and that my company has provided participation as follows:
Disadvantaged Business Participation _____ percent

The contract goals should be accordingly modified or waived. Attached is all information required by the Special Provision in support of this request including good faith effort. Also attached are the signed participation statements, forms SBE 2025, required by the Special Provision evidencing availability and use of each business participating in this plan and assuring that each business will perform a commercially useful function in the work of the contract.

Company

By _____

Title _____

Date _____

The "as read" Low Bidder is required to comply with the Special Provision.

Submit only one utilization plan for each project. The utilization plan shall be submitted in accordance with the special provision.

Bureau of Small Business Enterprises **Local Let Projects**
2300 South Dirksen Parkway Submit forms to the
Springfield, Illinois 62764 Local Agency

The Department of Transportation is requesting disclosure of information that is necessary to accomplish the purpose as outlined under State and Federal law. Disclosure of this information is **REQUIRED**. Failure to provide any information will result in the contract not being awarded. This form has been approved by the State Forms Manager Center.



**Illinois Department
of Transportation**

DBE Participation Statement

Subcontractor Registration _____

Letting _____

Participation Statement

Item No. _____

(1) Instructions

Contract _____

This form must be completed for each disadvantaged business participating in the Utilization Plan. This form shall be submitted in accordance with the special provision and will be attached to the Utilization Plan form.. If additional space is needed complete an additional form for the firm.

(2) Work

Pay Item No.	Description	Quantity	Unit Price	Total
Total				

(3) Partial Payment Items

For any of the above items which are partial pay items, specifically describe the work and subcontract dollar amount:

(4) Commitment

The undersigned certify that the information included herein is true and correct, and that the DBE firm listed below has agreed to perform a commercially useful function in the work of the contract item(s) listed above and to execute a contract with the prime contractor. The undersigned further understand that no changes to this statement may be made without prior approval from the Department's Bureau of Small Business Enterprises and that complete and accurate information regarding actual work performed on this project and the payment therefore must be provided to the Department.

Signature for Prime Contractor

Signature for DBE Firm

Title _____

Title _____

Date _____

Date _____

Contact _____

Contact Person _____

Phone _____

Phone _____

Firm Name _____

Firm Name _____

Address _____

Address _____

City/State/Zip _____

City/State/Zip _____

E _____

WC _____

The Department of Transportation is requesting disclosure of information that is necessary to accomplish the statutory purpose as outlined under the state and federal law. Disclosure of this information is **REQUIRED**. Failure to provide any information will result in the contract not being awarded. This form has been approved by the State Forms Management Center.

PROPOSAL ENVELOPE



PROPOSALS

for construction work advertised for bids by the
Illinois Department of Transportation

Item No.	Item No.	Item No.

Submitted By:

Name:
Address:
Phone No.

Bidders should use an IDOT proposal envelope or affix this form to the front of a 10" x 13" envelope for the submittal of bids. If proposals are mailed, they should be enclosed in a second or outer envelope addressed to:

Engineer of Design and Environment - Room 326
Illinois Department of Transportation
2300 South Dirksen Parkway
Springfield, Illinois 62764

NOTICE

Individual bids, including Bid Bond and/or supplemental information if required, should be securely stapled.

CONTRACTOR OFFICE COPY OF CONTRACT SPECIFICATIONS

NOTICE

None of the following material needs to be returned with the bid package unless the special provisions require documentation and/or other information to be submitted.

**Contract No. 63650
KANE County
Section 04-00092-00-BR (St. Charles)
Project M-TE-CMM-HD-TCS-IL08(030)
Route RED GATE ROAD
District 1 Construction Funds**



Illinois Department of Transportation

SUBCONTRACTOR DOCUMENTATION

Public Acts 96-0795 and 96-0920, enacted substantial changes to the provisions of the Illinois Procurement Code (30 ILCS 500). Among the changes are provisions affecting subcontractors. The Contractor awarded this contract will be required as a material condition of the contract to implement and enforce the contract requirements applicable to subcontractors approved in accordance with article 108.01 of the Standard Specifications for Road and Bridge Construction.

If the Contractor seeks approval of subcontractors to perform a portion of the work, and approval is granted by the Department, the Contractor shall provide a copy of the subcontract to the Chief Procurement Officer within 20 calendar days after execution of the subcontract.

The subcontract shall contain the certifications required to be made by subcontractors pursuant to Article 50 of the Illinois Procurement Code. This Notice to Bidders includes a document incorporating all required subcontractor certifications and disclosures for use by the Contractor in compliance with this mandate. The document is entitled State Required Ethical Standards Governing Subcontractors.

RETURN WITH SUBCONTRACT

STATE ETHICAL STANDARDS GOVERNING SUBCONTRACTORS

Article 50 of the Illinois Procurement Code establishes the duty of all State chief procurement officers, State purchasing officers, and their designees to maximize the value of the expenditure of public moneys in procuring goods, services, and contracts for the State of Illinois and to act in a manner that maintains the integrity and public trust of State government. In discharging this duty, they are charged by law to use all available information, reasonable efforts, and reasonable actions to protect, safeguard, and maintain the procurement process of the State of Illinois.

The certifications hereinafter made by the subcontractor are each a material representation of fact upon which reliance is placed should the Department approve the subcontractor. The chief procurement officer may terminate or void the subcontract approval if it is later determined that the bidder or subcontractor rendered a false or erroneous certification.

Section 50-2 of the Illinois Procurement Code provides that every person that has entered into a multi-year contract and every subcontractor with a multi-year subcontract shall certify, by July 1 of each fiscal year covered by the contract after the initial fiscal year, to the responsible chief procurement officer whether it continues to satisfy the requirements of Article 50 pertaining to the eligibility for a contract award. If a contractor or subcontractor is not able to truthfully certify that it continues to meet all requirements, it shall provide with its certification a detailed explanation of the circumstances leading to the change in certification status. A contractor or subcontractor that makes a false statement material to any given certification required under Article 50 is, in addition to any other penalties or consequences prescribed by law, subject to liability under the Whistleblower Reward and Protection Act for submission of a false claim.

A. Bribery

1. The Illinois Procurement Code provides:

Section 50-5. Bribery.

(a) Prohibition. No person or business shall be awarded a contract or subcontract under this Code who:

(1) has been convicted under the laws of Illinois or any other state of bribery or attempting to bribe an officer or employee of the State of Illinois or any other state in that officer's or employee's official capacity; or

(2) has made an admission of guilt of that conduct that is a matter of record but has not been prosecuted for that conduct.

(b) Businesses. No business shall be barred from contracting with any unit of State or local government, or subcontracting under such a contract, as a result of a conviction under this Section of any employee or agent of the business if the employee or agent is no longer employed by the business and:

(1) the business has been finally adjudicated not guilty; or

(2) the business demonstrates to the governmental entity with which it seeks to contract, or which is signatory to the contract to which the subcontract relates, and that entity finds that the commission of the offense was not authorized, requested, commanded, or performed by a director, officer, or high managerial agent on behalf of the business as provided in paragraph (2) of subsection (a) of Section 5-4 of the Criminal Code of 1961.

(c) Conduct on behalf of business. For purposes of this Section, when an official, agent, or employee of a business committed the bribery or attempted bribery on behalf of the business and in accordance with the direction or authorization of a responsible official of the business, the business shall be chargeable with the conduct.

(d) Certification. Every bid submitted to and contract executed by the State, and every subcontract subject to Section 20-120 of the Procurement Code shall contain a certification by the contractor or the subcontractor, respectively, that the contractor or subcontractor is not barred from being awarded a contract or subcontract under this Section and acknowledges that the chief procurement officer may declare the related contract void if any certifications required by this Section are false. A contractor who makes a false statement, material to the certification, commits a Class 3 felony.

2. The contractor or subcontractor certifies that it is not barred from being awarded a contract under Section 50.5.

B. Felons

1. The Illinois Procurement Code provides:

Section 50-10. Felons. Unless otherwise provided, no person or business convicted of a felony shall do business with the State of Illinois or any State agency, or enter into a subcontract, from the date of conviction until 5 years after the date of completion of the sentence for that felony, unless no person held responsible by a prosecutorial office for the facts upon which the conviction was based continues to have any involvement with the business.

2. Certification. Every bid submitted to and contract executed by the State and every subcontract subject to Section 20-120 of the Procurement Code shall contain a certification by the bidder or contractor or subcontractor, respectively, that the bidder, contractor, or subcontractor is not barred from being awarded a contract or subcontract under this Section and acknowledges that the chief procurement officer may declare the related contract void if any of the certifications required by this Section are false.

RETURN WITH SUBCONTRACT

C. Debt Delinquency

1. The Illinois Procurement Code provides:

Section 50-11 and 50-12. Debt Delinquency.

The contractor or bidder or subcontractor, respectively, certifies that it, or any affiliate, is not barred from being awarded a contract or subcontract under the Procurement Code. Section 50-11 prohibits a person from entering into a contract with a State agency, or entering into a subcontract, if it knows or should know that it, or any affiliate, is delinquent in the payment of any debt to the State as defined by the Debt Collection Board. Section 50-12 prohibits a person from entering into a contract with a State agency, or entering into a subcontract, if it, or any affiliate, has failed to collect and remit Illinois Use Tax on all sales of tangible personal property into the State of Illinois in accordance with the provisions of the Illinois Use Tax Act. The bidder or contractor or subcontractor, respectively, further acknowledges that the chief procurement officer may declare the related contract void if this certification is false or if the bidder, contractor, or subcontractor, or any affiliate, is determined to be delinquent in the payment of any debt to the State during the term of the contract.

D. Prohibited Bidders, Contractors and Subcontractors

1. The Illinois Procurement Code provides:

Section 50-10.5 and 50-60(c). Prohibited bidders, contractors and subcontractors.

The bidder or contractor or subcontractor, respectively, certifies in accordance with 30 ILCS 500/50-10.5 that no officer, director, partner or other managerial agent of the contracting business has been convicted of a felony under the Sarbanes-Oxley Act of 2002 or a Class 3 or Class 2 felony under the Illinois Securities Law of 1953 or if in violation of Subsection (c) for a period of five years from the date of conviction.. Every bid submitted to and contract executed by the State and every subcontract subject to Section 20-120 of the Procurement Code shall contain a certification by the bidder, contractor, or subcontractor, respectively, that the bidder, contractor, or subcontractor is not barred from being awarded a contract or subcontract under this Section and acknowledges that the chief procurement officer shall declare the related contract void if any of the certifications completed pursuant to this Section are false.

E. Section 42 of the Environmental Protection Act

The bidder or contractor or subcontractor, respectively, certifies in accordance with 30 ILCS 500/50-12 that the bidder, contractor, or subcontractor, is not barred from being awarded a contract or entering into a subcontract under this Section which prohibits the bidding on or entering into contracts with the State of Illinois or a State agency, or entering into any subcontract, that is subject to the Procurement Code by a person or business found by a court or the Pollution Control Board to have committed a willful or knowing violation of Section 42 of the Environmental Protection Act for a period of five years from the date of the order. The bidder or contractor or subcontractor, respectively, acknowledges that the chief procurement officer may declare the contract void if this certification is false.

The undersigned, on behalf of the subcontracting company, has read and understands the above certifications and makes the certifications as required by law.

Name of Subcontracting Company

Authorized Officer

Date

RETURN WITH SUBCONTRACT
SUBCONTRACTOR DISCLOSURES

I. DISCLOSURES

- A.** The disclosures hereinafter made by the subcontractor are each a material representation of fact upon which reliance is placed. The subcontractor further certifies that the Department has received the disclosure forms for each subcontract.

The chief procurement officer may void the bid, contract, or subcontract, respectively, if it is later determined that the bidder or subcontractor rendered a false or erroneous disclosure. A contractor or subcontractor may be suspended or debarred for violations of the Procurement Code. Furthermore, the chief procurement officer may void the contract or subcontract.

B. Financial Interests and Conflicts of Interest

1. Section 50-35 of the Illinois Procurement Code provides that all subcontracts with a total value of \$25,000 or more, from subcontractors identified in Section 20-120 of the Illinois Procurement Code, shall be accompanied by disclosure of the financial interests of the subcontractor. This disclosed information for the subcontractor, will be maintained as public information subject to release by request pursuant to the Freedom of Information Act, filed with the Procurement Policy Board, and shall be incorporated as a material term of the Prime Contractor's contract. Furthermore, pursuant to this Section, the Procurement Policy Board may recommend to allow or void a contract or subcontract based on a potential conflict of interest.

The financial interests to be disclosed shall include ownership or distributive income share that is in excess of 5%, or an amount greater than 60% of the annual salary of the Governor, of the subcontracting entity or its parent entity, whichever is less, unless the subcontractor is a publicly traded entity subject to Federal 10K reporting, in which case it may submit its 10K disclosure in place of the prescribed disclosure. If a subcontractor is a privately held entity that is exempt from Federal 10K reporting, but has more than 200 shareholders, it may submit the information that Federal 10K companies are required to report, and list the names of any person or entity holding any ownership share that is in excess of 5%. The disclosure shall include the names, addresses, and dollar or proportionate share of ownership of each person making the disclosure, their instrument of ownership or beneficial relationship, and notice of any potential conflict of interest resulting from the current ownership or beneficial interest of each person making the disclosure having any of the relationships identified in Section 50-35 and on the disclosure form.

The current annual salary of the Governor is \$177,412.00.

In addition, all disclosures shall indicate any other current or pending contracts, subcontracts, proposals, leases, or other ongoing procurement relationships the subcontracting entity has with any other unit of state government and shall clearly identify the unit and the contract, subcontract, proposal, lease, or other relationship.

2. **Disclosure Forms.** Disclosure Form A is attached for use concerning the individuals meeting the above ownership or distributive share requirements. Subject individuals should be covered each by one form. In addition, a second form (Disclosure Form B) provides for the disclosure of current or pending procurement relationships with other (non-IDOT) state agencies.

C. Disclosure Form Instructions

Form A Instructions for Financial Information & Potential Conflicts of Interest

If the subcontractor is a publicly traded entity subject to Federal 10K reporting, the 10K Report may be submitted to meet the requirements of Form A. If a subcontractor is a privately held entity that is exempt from Federal 10K reporting, but has more than 200 shareholders, it may submit the information that Federal 10K companies are required to report, and list the names of any person or entity holding any ownership share that is in excess of 5%. If a subcontractor is not subject to Federal 10K reporting, the subcontractor must determine if any individuals are required by law to complete a financial disclosure form. To do this, the subcontractor should answer each of the following questions. A "YES" answer indicates Form A must be completed. If the answer to each of the following questions is "NO", then the **NOT APPLICABLE STATEMENT** on the second page of Form A must be signed and dated by a person that is authorized to execute contracts for the subcontracting company. Note: These questions are for assistance only and are not required to be completed.

1. Does anyone in your organization have a direct or beneficial ownership share of greater than 5% of the bidding entity or parent entity? YES ___ NO ___
2. Does anyone in your organization have a direct or beneficial ownership share of less than 5%, but which has a value greater than 60% of the annual salary of the Governor? YES ___ NO ___
3. Does anyone in your organization receive more than 60% of the annual salary of the Governor of the subcontracting entity's or parent entity's distributive income? YES ___ NO ___

(Note: Distributive income is, for these purposes, any type of distribution of profits. An annual salary is not distributive income.)

4. Does anyone in your organization receive greater than 5% of the subcontracting entity's or parent entity's total distributive income, but which is less than 60% of the annual salary of the Governor? YES ___ NO ___

(Note: Only one set of forms needs to be completed per person per subcontract even if a specific individual would require a yes answer to more than one question.)

A "YES" answer to any of these questions requires the completion of Form A. The subcontractor must determine each individual in the subcontracting entity or the subcontracting entity's parent company that would cause the questions to be answered "Yes". Each form must be signed and dated by a person that is authorized to execute contracts for your organization. **Photocopied or stamped signatures are not acceptable.** The person signing can be, but does not have to be, the person for which the form is being completed. The subcontractor is responsible for the accuracy of any information provided.

If the answer to each of the above questions is "NO", then the **NOT APPLICABLE STATEMENT** on page 2 of Form A must be signed and dated by a person that is authorized to execute contracts for your company.

RETURN WITH SUBCONTRACT

Form B: Instructions for Identifying Other Contracts & Procurement Related Information

Disclosure Form B must be completed for each subcontract submitted by the subcontracting entity. *Note: Checking the NOT APPLICABLE STATEMENT on Form A does not allow the subcontractor to ignore Form B. Form B must be completed, checked, and dated or the subcontract will not be approved.*

The Subcontractor shall identify, by checking Yes or No on Form B, whether it has any pending contracts, subcontracts, leases, bids, proposals, or other ongoing procurement relationship with any other (non-IDOT) State of Illinois agency. If "No" is checked, the subcontractor only needs to complete the check box on the bottom of Form B. If "Yes" is checked, the subcontractor must list all non-IDOT State of Illinois agency pending contracts, subcontracts, leases, bids, proposals, and other ongoing procurement relationships. These items may be listed on Form B or on an attached sheet(s). Contracts with cities, counties, villages, etc. are not considered State of Illinois agency contracts and are not to be included. Contracts or subcontracts with other State of Illinois agencies such as the Department of Natural Resources or the Capital Development Board must be included.

ILLINOIS DEPARTMENT OF TRANSPORTATION

Form A Subcontractor: Financial Information & Potential Conflicts of Interest Disclosure

Subcontractor Name, Legal Address, City, State, Zip, Telephone Number, Email Address, Fax Number (if available)

Disclosure of the information contained in this Form is required by the Section 50-35 of the Illinois Procurement Code (30 ILCS 500). Subcontractors desiring to enter into a subcontract of a State of Illinois contract must disclose the financial information and potential conflict of interest information as specified in this Disclosure Form. This information shall become part of the publicly available contract file. This Form A must be completed for subcontracts with a total value of \$25,000 or more, from subcontractors identified in Section 20-120 of the Illinois Procurement Code, and for all open-ended contracts. A publicly traded company may submit a 10K disclosure (or equivalent if applicable) in satisfaction of the requirements set forth in Form A. See Disclosure Form Instructions.

The current annual salary of the Governor is \$177,412.00.

DISCLOSURE OF FINANCIAL INFORMATION

1. Disclosure of Financial Information. The individual named below has an interest in the SUBCONTRACTOR (or its parent) in terms of ownership or distributive income share in excess of 5%, or an interest which has a value of more than 60% of the annual salary of the Governor. (Make copies of this form as necessary and attach a separate Disclosure Form A for each individual meeting these requirements)

FOR INDIVIDUAL (type or print information) NAME: ADDRESS Type of ownership/distributable income share: stock sole proprietorship Partnership other: (explain on separate sheet): % or \$ value of ownership/distributable income share:

2. Disclosure of Potential Conflicts of Interest. Check "Yes" or "No" to indicate which, if any, of the following potential conflict of interest relationships apply. If the answer to any question is "Yes", please attach additional pages and describe.

(a) State employment, currently or in the previous 3 years, including contractual employment of services. Yes ___ No ___

If your answer is yes, please answer each of the following questions.

- 1. Are you currently an officer or employee of either the Capitol Development Board or the Illinois State Toll Highway Authority? Yes ___ No ___
2. Are you currently appointed to or employed by any agency of the State of Illinois? If you are currently appointed to or employed by any agency of the State of Illinois, and your annual salary exceeds 60% of the annual salary of the Governor, provide the name the State agency for which you are employed and your annual salary.

RETURN WITH SUBCONTRACT

3. If you are currently appointed to or employed by any agency of the State of Illinois, and your annual salary exceeds 60% of the annual salary of the Governor, are you entitled to receive (i) more than 7 1/2% of the total distributable income of your firm, partnership, association or corporation, or (ii) an amount in excess of 100% of the annual salary of the Governor?
Yes ___ No ___

4. If you are currently appointed to or employed by any agency of the State of Illinois, and your annual salary exceeds 60% of the annual salary of the Governor, are you and your spouse or minor children entitled to receive (i) more than 15 % in the aggregate of the total distributable income of your firm, partnership, association or corporation, or (ii) an amount in excess of two times the salary of the Governor?
Yes ___ No ___

(b) State employment of spouse, father, mother, son, or daughter, including contractual employment services in the previous 2 years.

Yes ___ No ___

If your answer is yes, please answer each of the following questions.

1. Is your spouse or any minor children currently an officer or employee of the Capitol Development Board or the Illinois State Toll Highway Authority?
Yes ___ No ___

2. Is your spouse or any minor children currently appointed to or employed by any agency of the State of Illinois? If your spouse or minor children is/are currently appointed to or employed by any agency of the State of Illinois, and his/her annual salary exceeds 60% of the annual salary of the Governor, provide the name of your spouse and/or minor children, the name of the State agency for which he/she is employed and his/her annual salary. _____

3. If your spouse or any minor children is/are currently appointed to or employed by any agency of the State of Illinois, and his/her annual salary exceeds 60% of the annual salary of the Governor, are you entitled to receive (i) more than 7 1/2% of the total distributable income of your firm, partnership, association or corporation, or (ii) an amount in excess of 100% of the annual salary of the Governor?
Yes ___ No ___

4. If your spouse or any minor children are currently appointed to or employed by any agency of the State of Illinois, and his/her annual salary exceeds 60% of the annual salary of the Governor, are you and your spouse or minor children entitled to receive (i) more than 15 % in the aggregate of the total distributable income of your firm, partnership, association or corporation, or (ii) an amount in excess of two times the salary of the Governor?
Yes ___ No ___

(c) Elective status; the holding of elective office of the State of Illinois, the government of the United States, any unit of local government authorized by the Constitution of the State of Illinois or the statutes of the State of Illinois currently or in the previous 3 years.
Yes ___ No ___

(d) Relationship to anyone holding elective office currently or in the previous 2 years; spouse, father, mother, son, or daughter.
Yes ___ No ___

(e) Appointive office; the holding of any appointive government office of the State of Illinois, the United States of America, or any unit of local government authorized by the Constitution of the State of Illinois or the statutes of the State of Illinois, which office entitles the holder to compensation in excess of the expenses incurred in the discharge of that office currently or in the previous 3 years.
Yes ___ No ___

(f) Relationship to anyone holding appointive office currently or in the previous 2 years; spouse, father, mother, son, or daughter.
Yes ___ No ___

(g) Employment, currently or in the previous 3 years, as or by any registered lobbyist of the State government.
Yes ___ No ___

RETURN WITH SUBCONTRACT

(h) Relationship to anyone who is or was a registered lobbyist in the previous 2 years; spouse, father, mother, son, or daughter. Yes ___ No ___

(i) Compensated employment, currently or in the previous 3 years, by any registered election or reelection committee registered with the Secretary of State or any county clerk of the State of Illinois, or any political action committee registered with either the Secretary of State or the Federal Board of Elections. Yes ___ No ___

(j) Relationship to anyone; spouse, father, mother, son, or daughter; who was a compensated employee in the last 2 years by any registered election or re-election committee registered with the Secretary of State or any county clerk of the State of Illinois, or any political action committee registered with either the Secretary of State or the Federal Board of Elections. Yes ___ No ___

3. Communication Disclosure.

Disclose the name and address of each lobbyist and other agent of the bidder or offeror who is not identified in Section 2 of this form, who is has communicated, is communicating, or may communicate with any State officer or employee concerning the bid or offer. This disclosure is a continuing obligation and must be promptly supplemented for accuracy throughout the process and throughout the term of the contract. If no person is identified, enter "None" on the line below:

Name and address of person(s): _____

RETURN WITH SUBCONTRACT

4. Debarment Disclosure. For each of the persons identified under Sections 2 and 3 of this form, disclose whether any of the following has occurred within the previous 10 years: debarment from contracting with any governmental entity; professional licensure discipline; bankruptcies; adverse civil judgments and administrative findings; and criminal felony convictions. This disclosure is a continuing obligation and must be promptly supplemented for accuracy throughout the procurement process and term of the contract. If no person is identified, enter "None" on the line below:

Name of person(s): _____

Nature of disclosure: _____

APPLICABLE STATEMENT

This Disclosure Form A is submitted on behalf of the INDIVIDUAL named on previous page. Under penalty of perjury, I certify the contents of this disclosure to be true and accurate to the best of my knowledge.

Completed by: _____ Date _____
Signature of Individual or Authorized Officer

NOT APPLICABLE STATEMENT

Under penalty of perjury, I have determined that no individuals associated with this organization meet the criteria that would require the completion of this Form A.

This Disclosure Form A is submitted on behalf of the SUBCONTRACTOR listed on the previous page.

_____ Date _____
Signature of Authorized Officer

RETURN WITH SUBCONTRACT

ILLINOIS DEPARTMENT
OF TRANSPORTATION

Form B
Subcontractor: Other Contracts &
Procurement Related Information
Disclosure

Subcontractor Name		
Legal Address		
City, State, Zip		
Telephone Number	Email Address	Fax Number (if available)

Disclosure of the information contained in this Form is required by the Section 50-35 of the Illinois Procurement Act (30 ILCS 500). This information shall become part of the publicly available contract file. This Form B must be completed for subcontracts with a total value of \$25,000 or more, from subcontractors identified in Section 20-120 of the Illinois Procurement Code, and for all open-ended contracts.

DISCLOSURE OF OTHER CONTRACTS, SUBCONTRACTS, AND PROCUREMENT RELATED INFORMATION

1. Identifying Other Contracts & Procurement Related Information. The SUBCONTRACTOR shall identify whether it has any pending contracts, subcontracts, including leases, bids, proposals, or other ongoing procurement relationship with any other State of Illinois agency: Yes ___ No ___

If "No" is checked, the subcontractor only needs to complete the signature box on the bottom of this page.

2. If "Yes" is checked. Identify each such relationship by showing State of Illinois agency name and other descriptive information such as bid or project number (attach additional pages as necessary). SEE DISCLOSURE FORM INSTRUCTIONS:

THE FOLLOWING STATEMENT MUST BE CHECKED

<input type="checkbox"/>	_____	_____
	Signature of Authorized Officer	Date



NOTICE TO BIDDERS

- 1. TIME AND PLACE OF OPENING BIDS.** Sealed proposals for the improvement described herein will be received by the Department of Transportation at the Harry R. Hanley Building, 2300 South Dirksen Parkway, in Springfield, Illinois until 10:00 o'clock a.m., January 20, 2012. All bids will be gathered, sorted, publicly opened and read in the auditorium at the Department of Transportation's Harry R. Hanley Building shortly after the 10:00 a.m. cut off time.
- 2. DESCRIPTION OF WORK.** The proposed improvement is identified and advertised for bids in the Invitation for Bids as:

**Contract No. 63650
KANE County
Section 04-00092-00-BR (St. Charles)
Project M-TE-CMM-HD-TCS-IL08(030)
Route RED GATE ROAD
District 1 Construction Funds**

Construct a new eight span structure, 1,147"-11 1/2" in length with an underslung cable stayed multi-use bridge, carrying Red Gate Road over the Fox River. Project includes new roadway construction, the widening and reconstruction of Illinois Route 25 and Illinois Route 31, storm sewer, water main, traffic signal and lighting, located in the City of St. Charles.

- 3. INSTRUCTIONS TO BIDDERS.** (a) This Notice, the invitation for bids, proposal and letter of award shall, together with all other documents in accordance with Article 101.09 of the Standard Specifications for Road and Bridge Construction, become part of the contract. Bidders are cautioned to read and examine carefully all documents, to make all required inspections, and to inquire or seek explanation of the same prior to submission of a bid.

(b) State law, and, if the work is to be paid wholly or in part with Federal-aid funds, Federal law requires the bidder to make various certifications as a part of the proposal and contract. By execution and submission of the proposal, the bidder makes the certification contained therein. A false or fraudulent certification shall, in addition to all other remedies provided by law, be a breach of contract and may result in termination of the contract.
- 4. AWARD CRITERIA AND REJECTION OF BIDS.** This contract will be awarded to the lowest responsive and responsible bidder considering conformity with the terms and conditions established by the Department in the rules, Invitation for Bids and contract documents. The issuance of plans and proposal forms for bidding based upon a prequalification rating shall not be the sole determinant of responsibility. The Department reserves the right to determine responsibility at the time of award, to reject any or all proposals, to readvertise the proposed improvement, and to waive technicalities.

By Order of the
Illinois Department of Transportation

Ann L. Schneider,
Secretary

INDEX
FOR
SUPPLEMENTAL SPECIFICATIONS
AND RECURRING SPECIAL PROVISIONS

Adopted January 1, 2012

This index contains a listing of SUPPLEMENTAL SPECIFICATIONS and frequently used RECURRING SPECIAL PROVISIONS.

SUPPLEMENTAL SPECIFICATIONS

Std. Spec. Sec.

Page No.

No Supplemental Specifications this year.

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RECURRING SPECIAL PROVISIONS

Adopted January 1, 2012

The following RECURRING SPECIAL PROVISIONS indicated by an "X" are applicable to this contract and are included by reference:

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5	Required Provisions - State Contracts (Eff. 4-1-65) (Rev. 1-1-12)	20
6	Asbestos Bearing Pad Removal (Eff. 11-1-03)	25
7	Asbestos Waterproofing Membrane and Hot-Mix Asphalt Surface Removal (Eff. 6-1-89) (Rev. 1-1-09)	26
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Adopted January 1, 2012

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<u>LR #</u>	<u>Pg #</u>	<u>Special Provision Title</u>	<u>Effective</u>	<u>Revised</u>
LR SD 12		<input type="checkbox"/> Slab Movement Detection Device	Nov. 11, 1984	Jan. 1, 2007
LR SD 13		<input type="checkbox"/> Required Cold Milled Surface Texture	Nov. 1, 1987	Jan. 1, 2007
LR SD406		<input type="checkbox"/> Safety Edge	April 1, 2011	
LR 105	349	<input checked="" type="checkbox"/> Cooperation with Utilities	Jan. 1, 1999	Jan. 1, 2007
LR 107-2		<input type="checkbox"/> Railroad Protective Liability Insurance for Local Lettings	Mar. 1, 2005	Jan. 1, 2006
LR 107-4	352	<input checked="" type="checkbox"/> Insurance	Feb. 1, 2007	Aug. 1, 2007
LR 108		<input type="checkbox"/> Combination Bids	Jan. 1, 1994	Mar. 1, 2005
LR 109		<input type="checkbox"/> Equipment Rental Rates	Jan. 1, 2012	
LR 212		<input type="checkbox"/> Shaping Roadway	Aug. 1, 1969	Jan. 1, 2002
LR 355-1		<input type="checkbox"/> Bituminous Stabilized Base Course, Road Mix or Traveling Plant Mix	Oct. 1, 1973	Jan. 1, 2007
LR 355-2		<input type="checkbox"/> Bituminous Stabilized Base Course, Plant Mix	Feb. 20, 1963	Jan. 1, 2007
LR 400-1		<input type="checkbox"/> Bituminous Treated Earth Surface	Jan. 1, 2007	Jan. 1, 2008
LR 400-2		<input type="checkbox"/> Bituminous Surface Plant Mix (Class B)	Jan. 1, 2008	
LR 402		<input type="checkbox"/> Salt Stabilized Surface Course	Feb. 20, 1963	Jan. 1, 2007
LR 403-2		<input type="checkbox"/> Bituminous Hot Mix Sand Seal Coat	Aug. 1, 1969	Jan. 1, 2007
LR 406		<input type="checkbox"/> Filling HMA Core Holes with Non-shrink Grout	Jan. 1, 2008	
LR 420		<input type="checkbox"/> PCC Pavement (Special)	May 12, 1964	Jan. 2, 2007
LR 442		<input type="checkbox"/> Bituminous Patching Mixtures for Maintenance Use	Jan. 1, 2004	Jun. 1, 2007
LR 451		<input type="checkbox"/> Crack Filling Bituminous Pavement with Fiber-Asphalt	Oct. 1, 1991	Jan. 1, 2007
LR 503-1		<input type="checkbox"/> Furnishing Class SI Concrete	Oct. 1, 1973	Jan. 1, 2002
LR 503-2		<input type="checkbox"/> Furnishing Class SI Concrete (Short Load)	Jan. 1, 1989	Jan. 1, 2002
LR 542		<input type="checkbox"/> Pipe Culverts, Type _____ (Furnished)	Sep. 1, 1964	Jan. 1, 2007
LR 663		<input type="checkbox"/> Calcium Chloride Applied	Jun. 1, 1958	Jan. 1, 2007
LR 702		<input type="checkbox"/> Construction and Maintenance Signs	Jan. 1, 2004	Jun. 1, 2007
LR 1004		<input type="checkbox"/> Coarse Aggregate for Bituminous Surface Treatment	Jan. 1, 2002	Jan. 1, 2007
LR 1030		<input type="checkbox"/> Growth Curve	Mar. 1, 2008	Jan. 1, 2010
LR 1032-1		<input type="checkbox"/> Emulsified Asphalts	Jan. 1, 2007	Feb. 7, 2008
LR 1032-2		<input type="checkbox"/> Multigrade Cold Mix Asphalt	Jan. 1, 2007	Feb. 1, 2007
LR 1102		<input type="checkbox"/> Road Mix or Traveling Plan Mix Equipment	Jan. 1, 2007	

BDE SPECIAL PROVISIONS
For the January 20 and March 9, 2012 Lettings

The following special provisions indicated by an "x" are applicable to this contract. An * indicates a new or revised special provision for the letting.

File Name	Pg #		Special Provision Title	Effective	Revised
* 80240			Above Grade Inlet Protection	July 1, 2009	Jan. 1, 2012
80099			Accessible Pedestrian Signals (APS)	April 1, 2003	Jan. 1, 2007
* 80275			Agreement to Plan Quantity	Jan. 1, 2012	
80192			Automated Flagger Assistance Device	Jan. 1, 2008	
* 80173	353	X	Bituminous Materials Cost Adjustments	Nov. 2, 2006	Jan. 1, 2012
80241			Bridge Demolition Debris	July 1, 2009	
* 80276			Bridge Relief Joint Sealer (NOTE: This special provision was previously named "Concrete Joint Sealer")	Jan. 1, 2012	
50261			Building Removal-Case I (Non-Friable and Friable Asbestos)	Sept. 1, 1990	April 1, 2010
50481			Building Removal-Case II (Non-Friable Asbestos)	Sept. 1, 1990	April 1, 2010
50491			Building Removal-Case III (Friable Asbestos)	Sept. 1, 1990	April 1, 2010
50531			Building Removal-Case IV (No Asbestos)	Sept. 1, 1990	April 1, 2010
80198			Completion Date (via calendar days)	April 1, 2008	
80199			Completion Date (via calendar days) Plus Working Days	April 1, 2008	
* 80277			Concrete Mix Design-Department Provided	Jan. 1, 2012	
80261	356	X	Construction Air Quality – Diesel Retrofit	June 1, 2010	
* 80237	359	X	Construction Air Quality – Diesel Vehicle Emissions Control	April 1, 2009	Jan. 2, 2012
80239	361	X	Construction Air Quality – Idling Restrictions	April 1, 2009	
80177			Digital Terrain Modeling for Earthwork Calculations	April 1, 2007	
80029	363	X	Disadvantaged Business Enterprise Participation	Sept. 1, 2000	Aug. 2, 2011
* 80272			Drainage and Inlet Protection Under Traffic	April 1, 2011	Jan. 1, 2012
80228	373	X	Flagger at Side Roads and Entrances	April 1, 2009	
80265	374	X	Friction Aggregate	Jan. 1, 2011	
80229	378	X	Fuel Cost Adjustment	April 1, 2009	July 1, 2009
80169			High Tension Cable Median Barrier	Jan. 1, 2007	April 1, 2009
80246	382	X	Hot-Mix Asphalt – Density Testing of Longitudinal Joints	Jan. 1, 2010	
* 80109	383	X	Impact Attenuators	Nov. 1, 2003	Jan. 1, 2012
* 80110			Impact Attenuators, Temporary	Nov. 1, 2003	Jan. 1, 2012
80045			Material Transfer Device	June 15, 1999	Jan. 1, 2009
* 80203	385	X	Metal Hardware Cast into Concrete	April 1, 2008	Jan. 1, 2012
80165			Moisture Cured Urethane Paint System	Nov. 1, 2006	Jan. 1, 2010
* 80253			Movable Traffic Barrier	Jan. 1, 2010	Jan. 1, 2012
80231			Pavement Marking Removal	April 1, 2009	
80254	386	X	Pavement Patching	Jan. 1, 2010	
80022	387	X	Payments to Subcontractors	June 1, 2000	Jan. 1, 2006
* 80278	389	X	Planting Woody Plants	Jan. 1, 2012	
* 80279	390	X	Portland Cement Concrete	Jan. 1, 2012	
* 80280	430	X	Portland Cement Concrete Sidewalk	Jan. 1, 2012	
80218			Preventive Maintenance – Bituminous Surface Treatment	Jan. 1, 2009	April 1, 2009
80219			Preventive Maintenance – Cape Seal	Jan. 1, 2009	Aug. 1, 2011
80220			Preventive Maintenance – Micro-Surfacing	Jan. 1, 2009	Aug. 1, 2011
80221			Preventive Maintenance – Slurry Seal	Jan. 1, 2009	
* 80281	431	X	Quality Control/Quality Assurance of Concrete Mixtures	Jan. 1, 2012	
34261			Railroad Protective Liability Insurance	Dec. 1, 1986	Jan. 1, 2006
80157			Railroad Protective Liability Insurance (5 and 10)	Jan. 1, 2006	
* 80172			Reclaimed Asphalt Pavement (RAP)	Jan. 1, 2007	Jan. 1, 2012
* 80282			Reclaimed Asphalt Shingles (RAS)	Jan. 1, 2012	
* 80283	444	X	Removal and Disposal of Regulated Substances	Jan. 1, 2012	
* 80224			Restoring Bridge Approach Pavements Using High-Density Foam	Jan. 1, 2009	Jan. 1, 2012
80271			Safety Edge	April 1, 2011	
* 80152			Self-Consolidating Concrete for Cast-In-Place Construction	Nov. 1, 2005	Jan. 1, 2012
* 80132	445	X	Self-Consolidating Concrete for Precast Products	July 1, 2004	Jan. 1, 2012

File Name	Pg #		Special Provision Title	Effective	Revised
* 80284			Shoulder Rumble Strips	Jan. 1, 2012	
* 80285	447	X	Sidewalk, Corner or Crosswalk Closure	Jan. 1, 2012	
80127			Steel Cost Adjustment	April 2, 2004	April 1, 2009
* 80255			Stone Matrix Asphalt	Jan. 1, 2010	Jan. 1, 2012
80143	448	X	Subcontractor Mobilization Payments	April 2, 2005	April 1, 2011
80075	449	X	Surface Testing of Pavements	April 1, 2002	Jan. 1, 2007
* 80286	456	X	Temporary Erosion and Sediment Control	Jan. 1, 2012	
80225			Temporary Raised Pavement Marker	Jan. 1, 2009	
* 80256			Temporary Water Filled Barrier	Jan. 1, 2010	Jan. 1, 2012
* 80287			Type G Inlet Box	Jan. 1, 2012	
80273	457	X	Traffic Control Deficiency Deduction	Aug. 1, 2011	
20338	458	X	Training Special Provisions	Oct. 15, 1975	
* 80270			Utility Coordination and Conflicts	April 1, 2011	Jan. 1, 2012
* 80288	461	X	Warm Mix Asphalt	Jan. 1, 2012	
* 80289			Wet Reflective Thermoplastic Pavement Marking	Jan. 1, 2012	
80071			Working Days	Jan. 1, 2002	

The following special provisions are either in the 2012 Standard Specification, the 2012 Recurring Special Provisions, or the special provision Portland Cement Concrete:

File Name	Special Provision Title	New Location	Effective	Revised
80186	Alkali-Silica Reaction for Cast-in-Place Concrete	The special provision Portland Cement Concrete	Aug. 1, 2007	Jan. 1, 2009
80213	Alkali-Silica Reaction for Precast and Precast Prestressed Concrete	The special provision Portland Cement Concrete	Jan. 1, 2009	
80207	Approval of Proposed Borrow Areas, Use Areas, and/or Waste Areas	Article 107.22	Nov. 1, 2008	Nov., 1, 2010
80166	Cement	Section 1001	Jan. 1, 2007	April 1, 2011
80260	Certification of Metal Fabricator	Article 106.08	July 1, 2010	
80094	Concrete Admixtures	Section 1021 and the special provision Portland Cement Concrete	Jan. 1, 2003	April 1, 2009
80226	Concrete Mix Designs	The special provision Portland Cement Concrete	April 1, 2009	
80227	Determination of Thickness	Articles 353.12, 353.13, 353.14, 354.09, 355.09, 356.07, 407.10, 482.06 and 483.07	April 1, 2009	
80179	Engineer's Field Office Type A	Articles 670.02 and 670.07	April 1, 2007	Jan. 1, 2011
80205	Engineer's Field Office Type B	Articles 670.04 and 670.07	Aug. 1, 2008	Jan. 1, 2011
80189	Equipment Rental Rates	Articles 105.07 and 109.04	Aug. 2, 2007	Jan. 2, 2008
80249	Frames and Grates	Articles 609.02 and 609.04	Jan. 1, 2010	
80194	HMA - Hauling on Partially Completed Full-Depth Pavement	Article 407.08	Jan. 1, 2008	
80245	Hot-Mix Asphalt - Anti-Stripping Additive	Article 1030.04	Nov. 1, 2009	
80250	Hot-Mix Asphalt - Drop-Offs	Article 701.07	Jan. 1, 2010	
80259	Hot-Mix Asphalt - Fine Aggregate	Articles 1003.01 and 1003.03	April 1, 2010	

<u>File Name</u>	<u>Special Provision Title</u>	<u>New Location</u>	<u>Effective</u>	<u>Revised</u>
80252	Improved Subgrade	Articles 302.04, 302.07 302.08, 302.10, 302.11 310.04, 310.08, 310.10 310.11 and 311.05	Jan. 1, 2010	
80266	Lane Closure, Multilane, Intermittent or Moving Operation, for Speeds \leq 40 MPH	Article 701.19	Jan.1, 2011	Jan. 2, 2011
80230	Liquidated Damages	Article 108.09	April 1, 2009	April 1, 2011
80267	Long-Span Guardrail over Culvert	Articles 630.07 and 630.08	Jan. 1, 2011	
80262	Mulch and Erosion Control Blankets	Articles 251.03, 251.04, 251.06, 251.07 and 1081.06	Nov. 1, 2010	April 1, 2011
80180	National Pollutant Discharge Elimination System / Erosion and Sediment Control Deficiency Deduction	Article 105.03	April 1, 2007	Nov. 1, 2009
80208	Nighttime Work Zone Lighting	Section 702	Nov.,1, 2008	
80232	Pipe Culverts	Article 542.03, 542.04, 542.11 and 1040.04	April 1, 2009	April 1, 2010
80263	Planting Perennial Plants	Section 254 and Article 1081.02	Jan. 1, 2011	
80210	Portland Cement Concrete Inlay or Overlay	Recurring CS #29	Nov. 1, 2008	
80217	Post Clips for Extruded Aluminum Signs	Article 1090.03	Jan. 1, 2009	
80268	Post Mounting of Signs	Article 701.14	Jan. 1, 2011	
80171	Precast Handling Holes	Articles 540.02, 540.06, 542.02, 542.04, 550.02, 550.06, 602.02, 602.07 and 1042.16	Jan. 1, 2007	
80015	Public Convenience and Safety	Article 107.09	Jan. 1, 2000	
80247	Raised Reflective Pavement Markers	Article 781.03	Nov. 1, 2009	April 1, 2010
80131	Seeding	Articles 250.07 and 1081.04	July 1, 2004	July 1, 2010
80264	Selection of Labor	Recurring CS #5	July 2, 2010	
80234	Storm Sewers	Article 550.02, 550.03, 550.06, 550.07, 550.08 and 1040.04	April 1, 2009	April 1, 2010
80087	Temporary Erosion Control	Articles 280.02, 280.03 280.04, 280.07, 280.08 and 1081.15	Nov.1, 2002	Jan. 1, 2011
80257	Traffic Barrier Terminal, Type 6	Article 631.07	Jan. 1, 2010	
80269	Traffic Control Surveillance	Article 701.10	Jan. 1, 2011	
80258	Truck Mounted/Trailer Mounted Attenuators	Articles 701.03, 701.15 and 1106.02	Jan. 1, 2010	

The following special provisions require additional information from the designer. The additional information needs to be included in a separate document attached to this check sheet. The Project Development and Implementation section will then include the information in the applicable special provision. The Special Provisions are:

- Bridge Demolition Debris
- Building Removal-Case I
- Building Removal-Case II
- Building Removal-Case III
- Building Removal-Case IV
- Completion Date
- Completion Date Plus Working Days
- DBE Participation
- Material Transfer Device
- Railroad Protective Liability Insurance
- Training Special Provisions
- Working Days

GUIDE BRIDGE SPECIAL PROVISION INDEX/CHECK SHEET

Effective as of the: January 20, 2012 Letting

Pg #	√	File Name	Title	Effective	Revised
		GBSP4	Polymer Modified Portland Cement Mortar	June 7, 1994	Oct. 15, 2011
		GBSP11	Permanent Steel Sheet Piling	Dec 15, 1993	Jan 1, 2007
		GBSP12	Drainage System	June 10, 1994	Jan 1, 2007
466	X	GBSP13	High-Load Multi-Rotational Bearings	Oct 13, 1988	Oct. 15, 2011
		GBSP14	Jack and Remove Existing Bearings	April 20, 1994	Jan 1, 2007
		GBSP15	Three Sided Precast Concrete Structure	July 12, 1994	Oct. 15, 2011
		GBSP16	Jacking Existing Superstructure	Jan 11, 1993	Jan 1, 2007
		GBSP17	Bonded Preformed Joint Seal	July 12, 1994	Jan 1, 2007
472	X	GBSP18	Modular Expansion Joint	May 19, 1994	Jan 1, 2007
		GBSP21	Cleaning and Painting Contact Surface Areas of Existing Steel Structures	June 30, 2003	May 18, 2011
		GBSP25	Cleaning and Painting Existing Steel Structures	Oct 2, 2001	May 18, 2011
		GBSP26	Containment and Disposal of Lead Paint Cleaning Residues	Oct 2, 2001	April 30, 2010
		GBSP28	Deck Slab Repair	May 15, 1995	Oct. 15, 2011
		GBSP29	Bridge Deck Microsilica Concrete Overlay	May 15, 1995	Jan 18, 2011
		GBSP30	Bridge Deck Latex Concrete Overlay	May 15, 1995	Jan 18, 2011
		GBSP31	Bridge Deck High-Reactivity Metakaolin (HRM) Conc Overlay	Jan 21, 2000	Jan 18, 2011
		GBSP32	Temporary Sheet Piling	Sept 2, 1994	Jan 1, 2007
		GBSP33	Pedestrian Truss Superstructure	Jan 13, 1998	Oct. 15, 2011
		GBSP34	Concrete Wearing Surface	June 23, 1994	Oct. 15, 2011
		GBSP35	Silicone Bridge Joint Sealer	Aug 1, 1995	Oct. 15, 2011
476	X	GBSP38	Mechanically Stabilized Earth Retaining Walls	Feb 3, 1999	Oct. 15, 2011
485	X	GBSP42	Drilled Soldier Pile Retaining Wall	Sept 20, 2001	Oct. 15, 2011
		GBSP43	Driven Soldier Pile Retaining Wall	Nov 13, 2002	Oct. 15, 2011
		GBSP44	Temporary Soil Retention System	Dec 30, 2002	May 11, 2009
		GBSP45	Bridge Deck Thin Polymer Overlay	May 7, 1997	Jan 1, 2007
		GBSP46	Geotextile Retaining Walls	Sept 19, 2003	Oct 9, 2009
		GBSP47	High Performance Concrete Structures	Aug 5, 2002	Jan 1, 2007
491	X	GBSP51	Pipe Underdrain for Structures	May 17, 2000	Jan 22, 2010
492	X	GBSP52	Porous Granular Embankment (Special)	Sept 28, 2005	Nov 14, 2008
		GBSP53	Structural Repair of Concrete	Mar 15, 2006	Oct. 15, 2011
493	X	GBSP55	Erection of Curved Steel Structures	June 1, 2007	
		GBSP56	Setting Piles in Rock	Nov 14, 1996	Jan 1, 2007
		GBSP57	Temporary Mechanically Stabilized Earth Retaining Walls	Jan 6, 2003	Oct 4, 2010
		GBSP59	Diamond Grinding and Surface Testing Bridge Sections	Dec 6, 2004	July 9, 2008
		GBSP60	Containment and Disposal of Non-Lead Paint Cleaning Residues	Nov 25, 2004	Mar 6, 2009
		GBSP61	Slipform Parapet	June 1, 2007	Oct. 15, 2011
		GBSP62	Concrete Deck Beams	June 13, 2008	Oct 9, 2009
		GBSP64	Segmental Concrete Block Wall	Jan 7, 1999	Oct 4, 2010
		GBSP65	Precast Modular Retaining Walls	Mar 19, 2001	Oct. 15, 2011
		GBSP66	Wave Equation Analysis of Piles	Nov 14, 2008	
		GBSP67	Structural Assessment Reports for Contractor's Means and Methods	Mar 6, 2009	
		GBSP70	Braced Excavation	Aug 9, 1995	May 18, 2011
		GBSP71	Aggregate Column Ground Improvement	Jan 15, 2009	Oct. 15, 2011

		GBSP72	Bridge Deck Fly Ash or GGBF Slag Concrete Overlay	Jan 18, 2011	Oct. 15, 2011
494	X	GBSP73	Cofferdams	Oct. 15, 2011	

LIST ANY ADDITIONAL SPECIAL PROVISIONS BELOW

The following Guide Bridge Special Provisions have been incorporated into the 2012 Standard Specifications:

File Name	Title	Std Spec Location
GBSP22	Cleaning and Painting New Metal Structures	506
GBSP36	Surface Preparation and Painting Req. for Weathering Steel	506
GBSP50	Removal of Existing Non-composite Bridge Decks	501
GBSP58	Mechanical Splicers	508
GBSP63	Demolition Plans for Removal of Existing Structures	501
GBSP68	Piling	512
GBSP69	Freeze-Thaw Aggregates for Concrete Superstructures Poured on Grade	1004

The following Guide Bridge Special Provisions have been discontinued or have been superseded:

File Name	Title	Disposition:
GBSP37	Underwater Structure Excavation Protection	Replaced by GBSP73

STATE OF ILLINOIS

SPECIAL PROVISIONS

The following Special Provisions supplement the "Standard Specifications for Road and Bridge Construction," adopted January 1, 2012 (referred to hereinafter as the "Standard Specifications"), the latest edition of the "Illinois Manual on Uniform Traffic Control Devices for Streets and Highways" (MUTCD) in effect on the date of invitations to bids, the "Supplemental Specifications and Recurring Special Provisions," adopted January 1, 2012 (as indicated on the check sheet included herein), "The Standard Specifications for Sewer and Water Construction in Illinois, July 2009, Sixth Edition," the "City of St. Charles Engineering Design and Inspection Policy Manual" Updated January 2010 (which shall apply to the water main portion under the City of St. Charles jurisdiction), and the "Manual of Test Procedures of Materials" which apply and govern the construction of Red Gate Road Section 04-00092-00-BR Project HD-8003(439), Contract 63650. In case of conflict with any part or parts of said specifications, these Special Provisions shall take precedent and shall govern where no conflict exists, the named specifications shall apply to this contract as if repeated in their entirety herein.

LOCATION OF PROJECT

This project is located approximately 2.6 miles north of Main Street (Illinois Route 64) in St. Charles. The project will extend Red Gate Road approximately 0.6 miles from IL Route 31 over the Fox River and Fox River Trail to IL Route 25. The new Illinois Route 25 and Red Gate Road intersection will be located approximately 0.25 miles south of the intersection of Illinois Route 25 and Army Trail Road. The net and gross project length is 3,698.71 Feet (0.701 Miles).

The work consists of the construction of a grade separation over the Fox River (S.N. 045-6024) and the construction of a Multi-Use bridge over the Fox River (S.N. 045-6020). In addition the project consists of the following:

- Clearing and Tree Removal
- Excavation and Embankment
- Widening and Resurfacing of Illinois Route 25 and Illinois Route 31
- Construction of Red Gate Road
- Storm Sewers
- Water Main
- Electrical Ductbank
- Traffic Signals
- Intersection Lighting
- Erosion Control

REMOVAL AND DISPOSAL OF REGULATED SUBSTANCES

This work shall be according to Article 669 of the Standard Specifications and the following:

Qualifications. The term environmental firms shall mean an environmental firm with at least five (5) documented leaking underground storage tank (LUST) cleanups or that is pre-qualified in hazardous waste by the Department. Documentation includes but not limited to verifying remediation and special waste operations for sites contaminated with gasoline, diesel, or waste oil in accordance with all Federal, State, or local regulatory requirements and shall be submitted to the Engineer for approval. The environmental firm selected shall not be a former or current consultant or have any ties with any of the properties contained within and/or adjacent to this construction project.

General. Implementation of this Special Provision will likely require the Contractor to subcontract for the execution of certain activities. It will be the Contractor's responsibility to Assess the working conditions and adjust anticipated production rates accordingly.

All contaminated materials shall be managed as non-special waste. This work shall include monitoring and potential sampling, analytical testing, and management of a material contaminated by regulated substances.

Any soil classified as a non-special waste shall be excavated and disposed of as directed by this project of the Engineer. Any excavation or disposal beyond what is required by this project or the Engineer will be at no additional cost to the Department. The preliminary site investigation (PSI) report, available through the District's Environmental Studies Unit, estimated the excavation quantity of non-special waste at the following location. The information available at the time of plan preparation determined the limits of the contamination and the quantities estimated were based on soil excavation for construction purposes only. The lateral distance is measured from centerline and the farthest distance is the offset distance or construction limit whichever is less. Any soil samples or analysis without the approval of the Engineer will be at no additional cost to the Department.

A) The Environmental Firm shall continuously monitor for worker protection and the Contractor shall manage any excavated soils **within the construction limits of this project as fill**. Although the soil concentrations exceed a residential property's Tier 1 soil remediation objective for the ingestion exposure pathway, they can be utilized within the construction limits as fill because the roadway is not considered a residential property. All storm sewer excavated soils can be placed back into the excavated trench as backfill unless trench backfill is specified. If the soils cannot be utilized within the construction limits as fill then they must be managed off-site as a non-special waste. The following areas can be managed within the construction limits as fill.

1. Station 209+30 to Station 209+50 0 to 100 feet LT (St. Charles North High School, Site 1925-4, 255 Red Gate Road) – non-special waste. Contaminants of concern sampling parameters: Arsenic.
2. Station 210+00 to Station 211+00 0 to 100 feet LT (Magellan Pipeline, Site 1925-3, Crossing IL 31 along the north side of Red Gate Road) – non-special waste. Contaminants of concern sampling parameters: Arsenic.

COMPLETION DATE PLUS WORKING DAYS

The Contractor shall complete all contract items associated with safely opening Red Gate Road over the Fox River and Fox River Trail including the intersections at IL Route 31 and IL Route 25 to traffic by the interim completion date of 11:59 PM, November 15, 2012, except as specified herein.

The Contractor will be allowed to complete all clean-up work, punch list items, landscaping, and bridge painting within 15 working days after the interim completion date for opening the roadway to traffic. Under extenuating circumstances, the Engineer may direct that certain items of work not affecting the safe opening of the roadway to traffic may be completed within the working days allowed for clean-up work and punch list items. Temporary lane closures for this work may be allowed at the discretion of the Engineer.

The final completion date for landscaping, and bridge painting shall be May 30, 2013.

The Special Provision for Failure to Complete the Work on Time shall apply to both the completion date and the number of working days.

FAILURE TO COMPLETE THE WORK ON TIME

Effective: September 30, 1985

Revised: January 1, 2007

Should the Contractor fail to complete the work on or before the interim completion date and or the final completion date as specified in the Special Provision for "Completion Date Plus Working Days", or within such extended time as may have been allowed by the Department, the Contractor shall be liable to the Department in the amount of \$10,000, not as a penalty but as liquidated damages, for each calendar day or a portion thereof of overrun in the contract time or such extended time as may have been allowed.

In fixing the damages as set out herein, the desire is to establish a certain mode of calculation for the work since the Department's actual loss, in the event of delay, cannot be predetermined, would be difficult of ascertainment, and a matter of argument and unprofitable litigation. This said mode is an equitable rule for measurement of the Department's actual loss and fairly takes into account the loss of use of the roadway if the project is delayed in completion. The Department shall not be required to provide any actual loss in order to recover these liquidated damages provided herein, as said damages are very difficult to ascertain. Furthermore, no provision of this clause shall be construed as a penalty, as such is not the intention of the parties.

A calendar day is every day shown on the calendar and starts at 12:00 midnight and ends at the following 12:00 midnight, twenty-four hours later.

STATUS OF UTILITIES TO BE ADJUSTED

Effective: January 30, 1987

Revised: July 1, 1994

Utility companies involved in this project have provided the following estimated dates:

<u>Name of Utility</u>	<u>Type</u>	<u>Location</u>	<u>Estimated Dates for Start and Completion of Relocation or Adjustments</u>
Com Ed Joe Stacho (630) 424-5704 1N423 Swift Road Lombard, IL 60148 Joseph.stacho@comed.com	Electric	See below	See below
Nicor Gas Constance Lane (630) 388-3830 1844 Ferry Road Naperville, IL 60563	Gas	See below	See below
MCI Dean Boyers 2400 N. Glenville Richardson, TX 75082	Fiber Optic	See below	See below
Magellan Midstream Partners Tim Kassen 1 Williams Center, MD27 Tulsa, OK 74172	Petroleum	See below	See below
Comcast Cable Scott Davolt (847)789-0791	Cable TV	See below	See below
SBC Legal Mandate Department 1000 Commerce Drive Oak Brook, IL 60523	Telecom	See Below	See Below

Utility	Location	Estimated Dates for Start and Completion of Relocation or adjustment
Comcast	South side of Existing Red Gate Road, West of the Intersection with IL-31	Underground Line in Conflict with proposed widening of Red Gate Road. Underground line will need to be relocated. Start Date: March 12, 2012 Completion Date: July 13, 2012
	West side of Existing IL - 31, North and South of Intersection with Red Gate Road	Potential adjustments or support of existing underground line near intersection of Red Gate Road to accommodate roadway widening, ditch grading, traffic signals, lighting and water main. Start Date: July 16, 2012 Completion Date: November 16, 2012
	East side of Existing IL - 25	Potential adjustments or support of existing underground line near intersection of Red Gate Road to accommodate roadway widening, ditch grading, retaining wall construction, traffic signals, lighting and water main. Start Date: March 12, 2012 Completion Date: July 13, 2012

Utility	Location	Estimated Dates for Start and Completion of Relocation or adjustment
ComEd	Southwest quadrant of intersection between Red Gate Road and IL - 31	Potential adjustments or support of existing facilities near intersection to accommodate traffic signals, water main, lighting or drainage. Start Date: July 16, 2012 Completion Date: November 16, 2012
	West side of Existing IL - 31, North and South of Intersection with Red Gate Road	Potential relocation, adjustments, or support of existing aerial line near intersection of Red Gate Road and IL - 31 to accommodate roadway widening, ditch grading, water main, traffic signals and lighting. Start Date: July 16, 2012 Completion Date: November 16, 2012
	East side of Existing IL - 31, South of Intersection with Red Gate Road	Potential adjustments or support of existing aerial line to accommodate water main construction. Start Date: March 12, 2012 Completion Date: July 13, 2012
	East side of Existing IL - 25, North and South of Intersection with Red Gate Road	Potential relocation, adjustments, or support of existing aerial line along the East side of IL - 25 to accommodate water main, retaining wall construction, ditch grading and drainage. Start Date: March 12, 2012 Completion Date: July 13, 2012

Magellan Midstream Partners	Northwest Quadrant of Intersection of Red Gate Road and IL - 31	Underground Pipeline under proposed widening of Red Gate Road and IL - 31. Precautions will be needed to construct over the pipeline, along with potential support of pipeline to accommodate water main, signals and lighting. Start Date: July 16, 2012 Completion Date: November 16, 2012
	Northeast Quadrant of Intersection of Red Gate Road and IL - 31	Underground Pipeline under proposed widening of IL - 31, and construction of Proposed Red Gate Road. Precautions will be needed to construct over the pipeline, along with potential support of pipeline to accommodate water main, signals and lighting. Start Date: March 12, 2012 Completion Date: July 13, 2012
MCI	Southside of Existing Red Gate Road, West of Intersection with IL - 31	Underground facilities in Conflict with proposed widening of Red Gate Road. Underground line will need to be relocated. Start Date: July 16, 2012 Completion Date: November 16, 2012
	Proposed Red Gate Road, East of Intersection with IL - 31	Underground facilities in Conflict with construction of Proposed Red Gate Road. Potential adjustments or support of existing underground facilities to accommodate water main, drainage and interconnect. Start Date: March 12, 2012 Completion Date: July 13, 2012

Utility	Location	Estimated Dates for Start and Completion of Relocation or adjustment
Nicor Gas	East side of Existing IL - 31, North and South of Intersection with Red Gate Road	Underground facilities in Conflict with widening of Existing IL - 31. Underground facilities will need to be relocated to accommodate widening. Potential adjustments or supports of existing facilities for water main, ditch grading, lighting, and signals. Start Date: March 12, 2012 Completion Date: July 13, 2012
	East side of Existing IL - 25, North and South of Intersection with Red Gate Road	Underground facilities in Conflict with widening of Existing IL - 25. Underground facilities will need to be relocated to accommodate widening. Potential adjustments or supports of existing facilities for water main. Start Date: March 12, 2012 Completion Date: July 13, 2012

	Existing Pinelands Road	Underground facilities in Conflict with Reconstruction of Pinelands Road. Underground facilities will need to be relocated to accommodate reconstruction. Start Date: July 16, 2012 Completion Date: November 16, 2012
SBC	East side of Existing IL - 31, North and South of Intersection with Red Gate Road	Underground facilities in Conflict with widening of Existing IL - 31. Underground facilities will need to be relocated to accommodate widening. Potential adjustments or supports of existing facilities for water main, ditch grading, lighting, and signals. Start Date: March 12, 2012 Completion Date: July 13, 2012

The above represents the best information available to the Department and is included for the convenience of the bidder. The applicable portions of Articles 105.07 and 107.31 of the Standard Specifications shall apply.

MAINTENANCE OF ROADWAYS

Effective: September 30, 1985
 Revised: November 1, 1996

Beginning on the date that work begins on this project, the Contractor shall assume responsibility for normal maintenance of all existing roadways within the limits of the improvement. This normal maintenance shall include all repair work deemed necessary by the Engineer, but shall not include snow removal operations. Traffic control and protection for maintenance of roadways will be provided by the Contractor as required by the Engineer.

If items of work have not been provided in the contract, or otherwise specified for payment, such items, including the accompanying traffic control and protection required by the Engineer, will be paid for in accordance with Article 109.04 of the Standard Specifications.

TRAFFIC CONTROL PLAN

Effective: September 30, 1985
 Revised: January 1, 2007

Traffic Control shall be according to the applicable sections of the Standard Specifications, the Supplemental Specifications, the "Illinois Manual on Uniform Traffic Control Devices for Streets and Highways", any special details and Highway Standards contained in the plans, and the Special Provisions contained herein.

Special attention is called to Article 107.09 of the Standard Specifications and the following Highway Standards, Details, Quality Standard for Work Zone Traffic Control Devices, Recurring Special Provisions and Special Provisions contained herein, relating to traffic control.

The Contractor shall contact the District One Bureau of Traffic at least 72 hours in advance of beginning work.

STANDARDS:

701001-02	OFF-RD 2L, 2W, MORE THAN 15' AWAY
701006-03	OFF-RD OPERATIONS, 2L, 2W 15' TO 24' FROM EDGE OF PAVEMENT
701011-02	OFF-RD OFF-RD MOVING OPERATIONS, 2L, 2W, DAY ONLY
701106-02	OFF-RD OPERATIONS, MULTILANE, MORE THAN 15' AWAY
701201-04	LANE CLOSURE, 2L, 2W, DAYS ONLY, FOR SPEEDS \geq 45 MPH
701301-04	LANE CLOSURE, 2L, 2W, SHORT TIME OPERATIONS
701306-03	LANE CLOSURE, 2L, 2W, SLOW MOVING OPERATIONS DAY ONLY, FOR SPEEDS \geq 45 MPH
701326-04	LANE CLOSURE, 2L, 2W, PAVEMENT WIDENING FOR SPEEDS > 45MPH
701422-04	LANE CLOSURE, MULTILANE, FOR SPEEDS \geq 45 MPH TO 55 MPH
701426-04	LANE CLOSURE,, MULTILANE, INTERMITTENT OR MOVING OPERATIONS, FOR SPEEDS > 45 MPH
701502-04	URBAN LANE CLOSURE 2L 2W BIDIRECTIONAL LEFT TURN LANE
701501-06	URBAN LANE CLOSURE, 2L, 2W, UNDIVIDED
701601-07	URBAN LANE CLOSURE, MULTILANE, 1W OR 2W WITH NONTRAVERSABLE MEDIAN
701606-08	URBAN LANE CLOSURE, MULTILANE, 2W WITH MOUNTABLE MEDIAN
701701-08	URBAN LANE CLOSURE, MULTILANE INTERSECTION
701901-02	TRAFFIC CONTROL DEVICES
704001-07	TEMPORARY CONCRETE BARRIER

DETAILS:

- TC-10 TRAFFIC CONTROL AND PROTECTION FOR SIDE ROADS, INTERSECTIONS AND DRIVEWAYS
- TC-14 TRAFFIC CONTROL AND PROTECTION AT TURN BAYS (TO REMAIN OPEN TO TRAFFIC)
- TC-16 PAVEMENT MARKING LETTERS AND SYMBOLS FOR TRAFFIC STAGING
- TC-18 SIGNING FOR FLAGGING OPERATIONS AT WORK ZONE OPENINGS
- TC-22 ARTERIAL ROAD INFORMATION SIGN
- TC-26 DRIVEWAY ENTRANCE SIGNING

SPECIAL PROVISIONS:

- TEMPORARY INFORMATION SIGNING
- MAINTENANCE OF ROADWAYS
- TRAFFIC CONTROL AND PROTECTION (ARTERIALS)

TRAFFIC CONTROL AND PROTECTION (ARTERIALS)

Effective: February 1, 1996
Revised: March 1, 2011

Specific traffic control plan details and Special Provisions have been prepared for this contract. This work shall include all labor, materials, transportation, handling and incidental work necessary to furnish, install, maintain and remove all traffic control devices required as indicated in the plans and as approved by the Engineer.

When traffic is to be directed over a detour route, the Contractor shall furnish, erect, maintain and remove all applicable traffic control devices along the detour route according to the details shown in the plans.

Method of Measurement: All traffic control (except Traffic Control and Protection (Expressways) and temporary pavement markings) indicated on the traffic control plan details and specified in the Special Provisions will be measured for payment on a lump sum basis.

Basis of Payment: All traffic control and protection will be paid for at the contract lump sum price for TRAFFIC CONTROL AND PROTECTION (SPECIAL).

Temporary pavement markings will be paid for separately unless shown on a Standard.

DRAINAGE AND EROSION CONTROL

INTERIM DRAINAGE. Sufficient drainage facilities shall be maintained throughout construction to facilitate surface runoff. When any loose material is deposited in the flow line of ditches, gutter or drainage structures so that the natural flow of water is obstructed, it shall be removed at the close of each working day. At the conclusion of the construction operations all drainage structures so affected shall be free from dirt and debris. This work shall be incidental in the cost of other items and not paid for separately. It shall be the Contractor's responsibility to plan his operations, with the approval of the Engineer in the field, so as to utilize the facilities provided to prevent local flooding and insure proper surface runoff. Any minor ditch grading as directed by the Engineer, necessary to provide for the interim drainage, will not be paid for separately but shall be included as incidental to cost of other items.

PROTECTION OF EXISTING DRAINAGE FACILITIES DURING CONSTRUCTION

Unless otherwise noted in the contract plans, the existing drainage facilities shall remain in use during the period of construction.

Prior to commencement of work, the Contractor, at his own expense, shall determine the exact location of existing structures which are within the proposed construction site.

All drainage structures are to be kept free from any debris resulting from construction operations. All work and materials necessary to prevent accumulation of debris in the drainage structure resulting from construction operations shall be removed at the Contractor's own expense, and no extra compensation will be allowed.

Unless reconstruction or adjustment of an existing manhole, catch basin, or inlet is called for in the contract plans or ordered by the Engineer, the proposed work shall meet the existing elevations of these structures.

Existing frames and grates are to remain unless otherwise noted in the contract plans or as directed by the Engineer. Frames and grates that are missing or damaged prior to construction shall be replaced. The type of replacements frame or grate shall be determined by the Engineer, and replacement and payment for same shall be in accordance with Section 604 and Article 104.02 respectively, of the Standard Specifications unless otherwise noted in the plans or Special Provisions.

EROSION AND SEDIMENT CONTROLS

This Special Provision revises Section 280 (Temporary Erosion Control) of the Standard Specifications for Road and Bridge Construction.

Include the following as the third paragraph of Article 280.01:

This work shall also include implementation and management of the approved Erosion and Sediment Control Schedules, method of operation for weekly co-inspections, inspection following rainfalls, maintenance (including regular periodic cleaning) and preparation and adherence to the Erosion and Sediment Control Schedule. Removal of erosion and sediment control items may be by others in the future where shown on the contract plans or as directed by the Engineer.

Add the following to Article 280.05:

Perimeter Erosion Barrier Maintenance shall consist of maintaining silt fence that has fallen down or become ineffective as a result of natural forces. This work shall include the removal of sediment buildup from behind the silt fence when the sediment has reached a level of half the above ground height of the fence, or as directed by the Engineer. Silt fence damaged by the Contractor's operations or negligence shall be repaired at the Contractor's expense, or as directed by the Engineer.

Inlet Filter Cleaning shall consist of cleaning sediment out of a drainage structure inlet filter when directed by the Engineer. This cleaning work is to be periodically performed as directed by the Engineer, for the duration of the use of each drainage structure inlet filter assembly. The Engineer will be the sole judge of the need for cleaning, based on the rate that debris and silt is collected at each inlet filter location.

Cleaning of the inlet filter shall consist of inspecting, cleaning (includes removal and proper disposal of debris and silt that has accumulated in the filter fabric bag), by vactoring, removing and dumping, or any other method approved by the Engineer.

Stabilized Construction Entrance Maintenance shall consist of all excavation and grading necessary to remove and replace the sediment-filled aggregate and shall not paid for separately, but shall be included in the cost of Stabilized Construction Entrance.

Add the following as Article 280.07 (h):

- (g) Stabilized Construction Entrance. This work will be measured for payment at the contract unit price per square yard. Pipe Culverts shall be paid for in accordance to

Article 542.11 of the Standard Specifications. Trench Backfill shall be paid for in accordance to Article 208.04.

Add the following as Article 280.07 (i):

- (h) Maintenance. Maintenance of temporary erosion and sediment control systems, including repair of the various systems, removal of entrapped sediment and cleaning of any silt filter fabric will not be paid for separately, unless otherwise specified. The sediment shall be removed as directed by the Engineer during the contract period and disposed of according to Article 202.03.

EROSION AND SEDIMENT CONTROL SCHEDULE

This Special Provision revises Section 108 (Prosecution and Progress) of the Standard Specifications for Road and Bridge Construction, creating a requirement that erosion and sediment control work items be included in the overall Progress Schedule.

Add the following to the end of the first paragraph of Article 108.02:

The Progress Schedule shall also include the following listed items. The erosion and sediment control components of the Progress Schedule shall be referred to as the Erosion and Sediment Control Schedule.

The Erosion and Sediment Control Schedule shall include the following:

- (a) Clearing of areas necessary for installation of perimeter controls specified in the Contract Documents.
- (b) Construction of perimeter controls specified in the Contract Documents.
- (c) Remaining clearing.
- (d) Roadway grading (including off-site work).
- (e) Structural Stabilization devices listed in the Storm Water Pollution Prevention Plan (SWPPP).
- (f) Winter shutdown date and probable days lost to in climate weather.
- (g) Seeding dates.
- (h) If applicable, utility installation and whether storm drains shall be used or blocked after construction.
- (i) Final grading, landscaping, and stabilization.
- (j) Removal of perimeter controls as required by plans.

DISTRICT 1 SPECIAL PROVISIONS

FINE AGGREGATE FOR HOT- MIX ASPHALT (HMA) (DISTRICT ONE)

Effective: May 1, 2007
 Revised: January 15, 2010

Add the following to the gradation tables of Article 1003.01(c) of the Standard Specifications:

FINE AGGREGATE GRADATIONS					
Grad No.	Sieve Size and Percent Passing				
	3/8	No. 4	No. 8	No. 16	No. 200
FA 22	100	6/	6/	8±8	2±2

FINE AGGREGATE GRADATIONS (metric)					
Grad No.	Sieve Size and Percent Passing				
	9.5 mm	4.75 mm	2.36 mm	1.16 mm	75 µm
FA 22	100	6/	6/	8±8	2±2

6/ For the fine aggregate gradations FA 22, the aggregate producer shall set the midpoint percent passing, and the Department will apply a range of ± ten percent. The midpoint shall not be changed without Department approval.

Revise Article 1003.03(a) of the Standard Specifications to read:

“(a) Description. Fine aggregate for HMA shall consist of sand, stone sand, chats, slag sand, or steel slag sand. For gradation FA 22, uncrushed material will not be permitted.”

Revise Article 1003.03 (c) of the Standard Specifications to read:

“(c) Gradation. The fine aggregate gradation for all HMA shall be FA1, FA 2, FA 20, FA 21 or FA 22. When Reclaimed Asphalt Pavement (RAP) is incorporated in the HMA design, the use of FA 21 Gradation will not be permitted.

Gradation FA 1, FA 2, or FA 3 shall be used when required for prime coat aggregate application for HMA.”

HOT MIX ASPHALT MIXTURE IL-4.75 (DIST 1)

Effective: January 1, 2007
 Revised: April 1, 2010

Description. This work shall consist of constructing Hot-Mix Asphalt (HMA) surface course or leveling binder with an IL-4.75 mixture. Work shall be according to Sections 406, 1030, 1031 and 1032 of the Standard Specifications except as modified herein.

Materials.

Fine Aggregate: Revise Note 2 of Article 1030.02 of the Standard Specifications to read:

- (a) Gradation. The fine aggregate gradation for IL-4.75 shall be FA 1, FA 2, FA 20 or FA 22.

When the 4.75 mix is used as leveling binder, steel slag sand will not be permitted.

The fine aggregate quality shall be Class B. The total minus No. 200 (75 µm) material in the mixture shall be free from organic impurities.

- (b) Reclaimed Asphalt Pavement (RAP). Only processed RAP over 3/8 in. (9.5 mm) screen will be permitted in the 4.75 mm mix. A maximum of 15 percent RAP will be allowed.
- (c) Asphalt Binder (AB). The AB shall be either Elvaloy or SBS/SBR; both shall be either PG 76-22 or PG 76-28. The AB shall meet the requirements of Article 1032.05(b) of the Standard Specifications; however the elastic recovery of the AB shall be 80 minimum.

The AB shall be shipped, maintained, and stored at the mix plant according to the manufacturer's requirements. It shall be placed in an empty tank and not blended with other asphalt cements.

- (d) Mineral Filler. Mineral filler shall conform to the requirements of Article 1011.01 of the Standard Specifications.

Mixture Design. Add the following to Article 1030.04(b) of the Standard Specifications

"(4) IL 4.75 Mixture.

Volumetric Parameter	Requirement
Design Air Voids	4.0% at Ndesign 50
Voids in the Mineral Aggregate (VMA)	18.5% minimum
Voids Filled with Asphalt (VFA)	72- 85%
Dust/AC Ratio	1.0
Density (% of Max Specific Gravity)	93.0 - 97.4
Maximum Drain-down	0.3%

Mixture Production. Plant modifications may be required to accommodate the addition of higher percentages of mineral filler as required by the JMF.

During production, mineral filler shall not be stored in the same silo as collected dust. This may require any previously collected bag house dust in a storage silo prior to production of the IL-4.75 mixture to be wasted. Only metered bag house dust may be returned back directly to the mix. Any additional minus No. 200 (75 µm) material needed to produce the IL-4.75 shall be mineral filler.

As an option, collected bag-house dust may be used in lieu of manufactured mineral filler, provided; 1) there is enough is available for the production of the IL-4.75 mix for the entire project and 2) a mix design was prepared with collected bag-house dust.

The mixture shall be produced within the temperature range recommended by the asphalt cement producer; but not less than 325 °F (165 °C).

The amount of moisture remaining in the finished mixture shall be less than 0.3 percent based on the weight of the test sample after drying.

Mixtures contain steel slag sand or aggregate having absorptions ≥ 2.5 percent shall have a silo storage plus haul time of not less than 1.5 hours.

Control Charts/Limits.

Add the following to Control Limits table in Article 1030.04(d)(4) of the Standard Specifications:

Parameter	Individual Test	Moving Average
% Passing		
No. 16 (1.18 mm)	$\pm 4\%$	$\pm 3\%$
No. 200 (75 μm)	$\pm 1.5\%$	$\pm 1.0\%$
Asphalt Binder Content	$\pm 0.3\%$	$\pm 0.2\%$
Air Voids	$\pm 1.2\%$ (of design)	$\pm 1.0\%$ (of design)

CONSTRUCTION REQUIREMENTS

Compaction.

Add the following after the first paragraph of Article 406.07(a) of the Standard Specifications:

“The compaction operation shall start immediately after the mixture has been placed. The Contractor shall provide a minimum of two steel-wheeled tandem rollers for breakdown (T_B) and one finish steel-wheeled roller (T_F) meeting the requirements of Article 1101.01(e), except the minimum compression for all of the rollers shall be 280 lb/in. (49 N/mm) of roller width. Pneumatic-tired and vibratory rollers will not be permitted.”

**HOT MIX ASPHALT MIXTURES, EGA MODIFIED PERFORMANCE GRADED (PG)
 ASPHALT BINDER**

Effective: March 16, 2009

Description. This work shall consist of constructing Hot Mix Asphalt (HMA) mixtures containing ethylene-glycidyl-acrylate (EGA) Modified Performance Graded (PG) Asphalt Binder. Work shall be according to Sections 406, 1030, and 1032 of the Standard Specifications, except as modified herein.

The asphalt binder shall meet the following requirements:

EGA Modified Performance Graded (PG) Asphalt Binder. The asphalt binder shall meet the requirements of AASHTO M 320, Table 1 “Standard Specification for Performance Graded Asphalt Binder” for the grade shown on the plans. An ethylene-glycidyl-acrylate (EGA) terpolymer with a maximum of 0.3 percent polyphosphoric acid by weight of asphalt binder, shall be added to the base asphalt binder to achieve the specified performance grade. Asphalt

modification at hot-mix asphalt plants will not be allowed. The modified asphalt binder shall be smooth, homogeneous, and be according to the requirements shown in the following table for the grade shown on the plans.

Ethylene-Glycidyl-Acrylate (EGA) Modified Asphalt Binders		
Test	Asphalt Grade EGA PG 70-22 EGA PG 70-28	Asphalt Grade EGA PG 76-22 EGA PG 76-28
Separation of Polymer Illinois Test Procedure, "Separation of Polymer from Asphalt Binder" Difference in °F (°C) of the softening point between top and bottom portions.	4 (2) max.	4 (2) max.
TEST ON RESIDUE FROM ROLLING THIN FILM OVEN TEST (AASHTO T 240)		
Elastic Recovery ASTM D 6084, Procedure A, 77 °F (25 °C), 100 mm elongation, %	60 min.	70 min.

RECLAIMED ASPHALT SHINGLES (RAS)(D-1)

Effective: March 1, 2011

Revised: September 1, 2011

Description. Reclaimed asphalt shingles (RAS) meeting Type I or Type 2 requirements will be permitted in all HMA mixtures as specified herein for overlay applications only. RAS shall not be used in full depth HMA pavement. RAS shall be a clean and uniform material with a maximum of 0.5 percent unacceptable materials, as defined in Bureau of Materials and Physical Research Policy (BMPR) Memorandum *Reclaimed Asphalt Shingle (RAS) Sources*, by weight of RAS. All RAS used shall come from a BMPR approved processing facility where it shall be ground and processed to 100 percent passing the 3/8 in. sieve and 93 percent passing the #4 sieve based on a dry shake gradation. RAS shall be uniform in gradation and asphalt binder content and shall meet the testing requirements specified herein.

Definitions. RAS shall meet either Type I or Type 2 requirements as specified herein.

- (a) Type I. Type I RAS shall be processed, preconsumer asphalt shingles salvaged from the manufacture of residential asphalt roofing shingles.
- (b) Type 2. Type 2 RAS shall be processed post-consumer shingles only, salvaged from residential, or four unit or less dwellings not subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP).

Stockpiles. Type 1 and Type 2 RAS shall be stockpiled separately and shall not be intermingled or used together in a HMA mix design. Each stockpile shall be signed indicating what type of RAS is present.

Unless otherwise approved by the Engineer, mechanically blending manufactured sand (FM20 or FM 22) up to an equal weight of RAS with the processed RAS will be permitted to improve workability. The sand shall be "B Quality" or better from an approved Aggregate Gradation Control System source. The sand shall be accounted for in the mix design and during HMA production. The plant control system must automatically adjust the combined Recycled AC content for RAS and manufactured sand additions.

Records identifying the shingle processing facility supplying the RAS, RAS type and lot number shall be maintained by project contract number and kept for a minimum of 3 years.

Testing. RAS shall be sampled and tested during stockpiling.

For testing during stockpiling, washed extraction, and testing for unacceptable materials shall be run at the minimum frequency of one sample per 200 tons (180 metric tons) for the first 1000 tons (900 metric tons) and one sample per 250 tons (225 metric tons) thereafter. A minimum of five tests are required for stockpiles less than 1000 tons (900 metric tons). Once a ≤ 1000 ton, five-test stockpile has been established it shall be sealed. Additional incoming RAS shall be stockpiled in a separate working pile as designated in the Quality Control plan and only added to the sealed stockpile when the test results of the working pile are complete and are found to meet the tolerances specified herein for the original sealed RAS stockpile.

Before testing, each field sample shall be split to obtain two samples. One of the two test samples from the final split shall be labeled and stored for Department use. The Contractor shall extract the other test sample according to Department procedures. The Engineer reserves the right to test any sample (split or Department-taken) to verify Contractor test results.

Evaluation of Test Results. All of the test results, with the exception of percent unacceptable materials, shall be compiled and averaged for asphalt binder content, and gradation. Individual test results, when compared to the averages, will be accepted if within the tolerances listed below.

Parameter	RAS
No. 8 (2.36 mm)	$\pm 5 \%$
No. 16 (1.18 mm)	$\pm 5 \%$
No. 30 (600 μm)	$\pm 4\%$
No. 200 (75 μm)	$\pm 2.0 \%$
Asphalt Binder Content	$\pm 1.5 \%$

If more than 20 percent of the individual sieves are out of the gradation tolerances, or if more than 20 percent of the asphalt binder content, or if the percent unacceptable materials exceeds 0.5 percent by weight of material retained on the #4 sieve, the RAS shall not be used in Department projects. All test data and acceptance ranges shall be sent to the District for evaluation.

Use of RAS in HMA. Type 1 or Type 2 RAS may be used alone or in conjunction with Reclaimed Asphalt Pavement (RAP) in all HMA mixtures up to a maximum of 5.0 percent by weight of total mix.

Level 1 asphalt binder replacement. The maximum Level 1 RAS or RAS/RAP blend usage will be dictated by the Level 1 - Maximum Asphalt Binder Replacement (MABR) table listed below.

HMA Mixtures ^{1/, 2/}	Level 1 - Maximum Asphalt Binder Replacement		
Ndesign	Binder/Leveling Binder	Surface	Polymer Modified ^{3/, 4/}
30	35	25	15
50	35	25	15
70	35	25	15
90	35	25	15
105	35	25	15

Level 2 asphalt binder replacement (Hamburg Wheel). The maximum Level 2 RAS or RAS/RAP blend usage will be dictated by the Level 2 - MABR table listed below.

HMA Mixtures ^{1/, 2/}	Level 2 - Maximum Asphalt Binder Replacement		
Ndesign	Binder/Leveling Binder	Surface	Polymer Modified ^{3/, 4/}
30	40	30	20
50	40	30	20
70	40	30	20
90	40	30	20
105	40	30	20

- 1/ For HMA shoulder and stabilized subbase (HMA "All Other") N-30, the maximum binder replacement shall be 50 percent.
- 2/ When the asphalt binder replacement exceeds 15 percent for all mixtures, except for SMA and IL-4.75, the high and low virgin asphalt binder grade shall each be reduced by one grade (i.e. 20 percent asphalt binder replacement would require a virgin asphalt binder grade of PG64-22 to be reduced to a PG58-28).
- 3/ For SMA the maximum asphalt binder replacement shall be 20 percent. When the binder replacement exceeds 10 percent, the high and low virgin asphalt binder grade shall each be reduced by one grade (i.e. 15 percent asphalt binder replacement would require a virgin asphalt binder grade of PG76-22 to be reduced to a PG70-28).
- 4/ For IL-4.75 mix the maximum asphalt binder replacement shall not exceed 30 percent. When the asphalt binder replacement exceeds 10 percent, the high and low virgin asphalt binder grade shall each be reduced by one grade (i.e. 15 percent asphalt binder replacement would require a virgin asphalt binder grade of PG76-22 to be reduced to a PG70-28).

HMA Mix Designs. RAS and RAS/RAP designs shall be submitted for volumetric verification. Type 1 and Type 2 RAS are not interchangeable in a mix design. A RAS stone bulk specific gravity (Gsb) of 2.500 shall be used for mix design purposes.

RAS and RAS/RAP mix designs with asphalt binder replacements exceeding the Level 1 – MABR limits specified herein, shall be tested prior to submittal for verification, according to Illinois Modified AASHTO T324 (Hamburg Wheel). RAS and RAS/RAP mixtures exceeding the Level 1 MABR limits shall meet the following requirements:

Asphalt Binder Grade	# Repetitions	Max Rut Depth (mm)
PG76-XX	20,000	12.5
PG70-XX	20,000	12.5
PG64-XX	10,000	12.5
PG58-XX	10,000	12.5

Note: For SMA designs the maximum rut depth is 6.0mm and for IL. 4.75 designs @ 15,000 repetitions the maximum rut depth is 9.0mm.

HMA Production. Mixture production, where the RAS and RAS/RAP asphalt binder replacement exceeds the Level 1 MABR, shall be sampled within the first 500 tons on the first day of production with a split reserved for the Department. The mix sample shall be tested according to Illinois Modified AASHTO T324 and shall meet the requirements specified herein. RAS and RAS/RAP mix production shall not exceed 1,500 tons or one days production, which ever comes first, until the testing is completed and the mixture is found to be in conformance. The requirement to cease mix production may be waived if the RAS and RAS/RAP plant produced mixture conformance is demonstrated prior to start of mix production for a State contract.

RAS shall be incorporated into the HMA mixture either by a separate weight depletion system or by using the RAP weigh belt. Either feed system shall be interlocked with the aggregate feed or weigh system to maintain correct proportions for all rates of production and batch sizes. The portion of RAS shall be controlled accurately to within ± 0.5 percent of the amount of RAS utilized. When using the weight depletion system, flow indicators or sensing devices shall be provided and interlocked with the plant controls such that mixture production is halted when RAS flow is interrupted.

When producing HMA containing RAS, a positive dust control system shall be utilized.

HMA plants utilizing RAS shall be capable of automatically recording and printing the following information.

(a) Dryer Drum Plants.

- (1) Date, month, year, and time to the nearest minute for each print.
- (2) HMA mix number assigned by the Department.
- (3) Accumulated weight of dry aggregate (combined or individual) in tons (metric tons) to the nearest 0.1 ton (0.1 metric ton).
- (4) Accumulated dry weight of RAS in tons (metric tons) to the nearest 0.1 ton (0.1 metric ton).

- (5) Accumulated mineral filler in revolutions, tons (metric tons), etc. to the nearest 0.1 unit.
 - (6) Accumulated asphalt binder in gallons (liters), tons (metric tons), etc. to the nearest 0.1 unit.
 - (7) Residual asphalt binder in the RAS material as a percent of the total mix to the nearest 0.1 percent.
 - (8) Aggregate and RAS moisture compensators in percent as set on the control panel. (Required when accumulated or individual aggregate and RAS are printed in wet condition.)
 - (9) Accumulated HMA tonnage
 - (10) Dust removal (accumulated to nearest 0.1 tons)
- (b) Batch Plants.
- (1) Date, month, year, and time to the nearest minute for each print.
 - (2) HMA mix number assigned by the Department.
 - (3) Individual virgin aggregate hot bin batch weights to the nearest pound (kilogram).
 - (4) Mineral filler weight to the nearest pound (kilogram).
 - (5) RAS weight to the nearest pound (kilogram).
 - (6) Virgin asphalt binder weight to the nearest pound (kilogram).
 - (7) Residual asphalt binder in the RAS material as a percent of the total mix to the nearest 0.1 percent.

The printouts shall be maintained in a file at the plant for a minimum of one year or as directed by the Engineer and shall be made available upon request. The printing system will be inspected by the Engineer prior to production and verified at the beginning of each construction season thereafter.

TEMPERATURE CONTROL FOR CONCRETE PLACEMENT (DISTRICT ONE)

Effective: May 1, 2007

Delete the second and third sentences of the second paragraph of Article 1020.14(a) of the Standard Specifications.

COARSE AGGREGATE FOR BACKFILL, TRENCH BACKFILL AND BEDDING (D-1)

Effective: November 1, 2011

This work shall be according to Section 1004.05 of the Standard Specifications except for the following:

Reclaimed Asphalt Pavement (RAP) maybe blended with gravel, crushed gravel, crushed stone crushed concrete, crushed slag, chats, crushed sand stone or wet bottom boiler slag. The RAP materials shall be crushed and screened. Unprocessed RAP grindings will not be permitted. The RAP shall be uniformly graded and shall pass the 1.0 in. (25 mm) screen. When RAP is blended with any of the coarse aggregate listed above, the blending shall be done mechanically with calibrated feeders. The feeders shall have an accuracy of ± 2.0 percent of the actual quantity of material delivered. The final blended product shall not contain more than 40 percent by weight RAP.

The coarse aggregate listed above shall meet CA 6 and CA 10 gradations prior to being blended with the processed and uniformly graded RAP.

AGGREGATE SUBGRADE, 12" (300 MM)

Effective: May 1, 1990

Revised: October 1, 2011

This work shall be done in accordance with the applicable portions of Section 207of the Standard Specifications. The material shall conform to Article 1004.05of the Standard Specifications except as follows:

1. Crushed Stone, Crushed Blast Furnace Slag, and Crushed Concrete will be permitted. Steel slag and other expansive materials as determined through testing by the Department will not be permitted.

<u>Sieve Size</u>	<u>Percent Passing</u>
6 in. (150 mm)	97 \pm 3
4 in. (100 mm)	90 \pm 10
2 in. (50 mm)	45 \pm 25
No. 4 (4.75 mm)	20 \pm 20
No. 200 (75 μ m)	5 \pm 5

2. Crushed Gravel

<u>Sieve Size</u>	<u>Percent Passing</u>
6 in. (150 mm)	100
4 in. (100 mm)	90 \pm 10
2 in. (50 mm)	55 \pm 25
No. 4 (4.75 mm)	30 \pm 20
No. 200 (75 μ m)	5 \pm 5

3. Crushed Concrete with Bituminous Materials *

<u>Sieve Size</u>	<u>Percent Passing</u>
6 in. (150 mm)	97 ± 3
4 in. (100 mm)	90 ± 10
2 in. (50 mm)	45 ± 25
No. 4 (4.75 mm)	20 ± 20
No. 200 (75 µm)	5 ± 5

*The Bituminous material shall be separated and mechanically blended with the crushed concrete so that the bituminous material does not exceed 40 percent of the final products. The top size of the bituminous material in the final product shall be less than 4 inches (100 mm) and shall not contain more than 10.0 percent steel slag RAP or any material that is considered expansive by the Department.

The Aggregate subgrade shall be placed in two lifts consisting of a 9 inch (225 mm) and variable nominal thickness lower lift and a 3 inch (75 mm) nominal thickness top lift of capping aggregate having a gradation of CA 6. The CA 6 may be blended as follows. The bituminous materials shall be separated and mechanically blended with interlocking feeders with crushed concrete or natural aggregate, in a manner that the bituminous material does not exceed 40 percent of the final product. This process shall be approved by the engineer prior to start of production. The top side of the bituminous material in the final products shall be less than 1 1/2 inches (37.5 mm) and shall not contain any material considered expansive by the department. Reclaimed Asphalt Pavement (RAP) (having a maximum of 10 percent steel slag RAP) meeting the requirements of Section 1031 and having 100 percent passing the 1 1/2 inches (37.5 mm) sieve and well graded down through fines may also be used as capping aggregate. IDOT testing of the RAP material will be used in determining the percent of steel slag RAP or Expansive Material. When the contract specifies that an aggregate subbase is to be placed on the Aggregate Subgrade, the 3 inches (75 mm) of capping aggregate will be eliminated. A vibratory roller meeting the requirements of Article 1101.01(g) of the Standard Specifications shall be used to roll each lift of material to obtain the desired keying or interlock and necessary compaction. The Engineer will verify that adequate keying has been obtained.

When a recommended remedial treatment for unstable subgrades is included in the contract, the lower lift of Aggregate Subgrade may be placed simultaneously with the material for Porous Granular Embankment, Subgrade when the total thickness to be placed is 2 feet (600 mm) or less.

Method of Measurement.

Contract Quantities. Contract quantities shall be in accordance with Article 202.07 of the Standard Specifications.

Measured Quantities. Aggregate subgrade will be measured in place and the area computed in square yards (squaremeters).

Basis of Payment. This work will be paid for at the contract unit price per square yard (squaremeter) for AGGREGATE SUBGRADE, 12" (AGGREGATE SUBGRADE, 300 mm).

RECLAIMED ASPHALT PAVEMENT (RAP) (BMPR) (DISTRICT ONE)

Effective: January 1, 2007
Revised: September 1, 2011

In Article 1030.02(g), delete the last sentence of the first paragraph in (Note 2).

Revise Section 1031 of the Standard Specifications to read:

"SECTION 1031.RECLAIMED ASPHALT PAVEMENT

1031.01 Description. RAP is reclaimed asphalt pavement resulting from cold milling and crushing of an existing dense graded hot-mix asphalt (HMA) pavement. The Contractor shall supply written documentation that the RAP originated from routes or airfields under federal, state, or local agency jurisdiction. RAP will be considered processed FRAP after completion of both crushing and screening to size.

1031.02 Stockpiles. The Contractor shall construct individual, sealed RAP stockpiles meeting one of the following definitions. No additional RAP shall be added to the pile after the pile has been sealed. Stockpiles shall be sufficiently separated to prevent intermingling at the base. All stockpiles (including unprocessed RAP and processed FRAP) shall be identified by signs indicating the type as listed below (i.e. "Conglomerate RAP D quality").

Prior to milling, the Contractor shall identify the quality of the RAP to clarify appropriate stockpile and document the RAP's origin. Stockpile shall be separated by type of material (i.e. crushed natural aggregate, ACBF and steel slag, crystalline structure, etc.).

- (a) Fractionated RAP (FRAP). FRAP shall consist of RAP from Class I, Superpave (High ESAL), HMA (High ESAL), or equivalent mixtures. The coarse aggregate in FRAP shall be crushed aggregate and may represent more than one aggregate type and/or quality but shall be at least C quality. All FRAP shall be processed prior to testing and sized into fractions with the separation occurring on or between the #4 (4.75mm) and ½ in. (12.5mm) sieves. Agglomerations shall be minimized such that 100 percent of the RAP in the coarse fraction shall pass the maximum sieve size specified for the mix the RAP will be used in.
- (b) Restricted FRAP (B quality) stockpiles shall consist of RAP from Class I, Superpave (High ESAL), or HMA (High ESAL). If approved by the Engineer, the aggregate from a maximum 3.0 inch single combined pass of surface/binder milling will be classified as B quality. All millings from this application will be processed into FRAP as described previously.
- (c) Conglomerate. Conglomerate RAP stockpiles shall consist of RAP from Class I, Superpave (High ESAL), HMA (High ESAL), or equivalent mixtures. The coarse aggregate in this RAP shall be crushed aggregate and may represent more than one aggregate type and/or quality but shall be at least C quality. This RAP may have an inconsistent gradation and/or asphalt binder content prior to processing. All conglomerate RAP shall be processed (FRAP) prior to testing. Conglomerate RAP stockpiles shall not contain steel slag or other expansive material as determined by the Department.

- (d) Conglomerate "D" Quality (DQ). Conglomerate DQ RAP stockpiles shall consist of RAP from HMA shoulders, bituminous stabilized subbases or Superpave (Low ESAL)/HMA (Low ESAL) IL-19.0L binder mixture. The coarse aggregate in this RAP may be crushed or processed (FRAP DQ) but shall be at least D quality. This RAP may have an inconsistent gradation and/or asphalt binder content. Conglomerate DQ RAP stockpiles shall not contain steel slag or other expansive material as determined by the Department.
- (e) Non-Quality. RAP stockpiles that do not meet the requirements of the stockpile categories listed above shall be classified as "Non-Quality".

RAP/FRAP containing contaminants, such as earth, brick, sand, concrete, sheet asphalt, bituminous surface treatment (i.e. chip seal), pavement fabric, joint sealants, plant cleanout, etc., will be unacceptable unless the contaminants are removed to the satisfaction of the Engineer. Sheet asphalt shall be stockpiled separately.

1031.03 Testing. When used in HMA, the RAP/FRAP shall be sampled and tested after processing and stockpiling.

For testing during stockpiling, washed extraction samples shall be run at the minimum frequency of one sample per 500 tons (450 metric tons) for the first 2000 tons (1800 metric tons) and one sample per 2000 tons (1800 metric tons) thereafter. A minimum of five tests shall be required for stockpiles less than 4000 tons (3600 metric tons).

For testing after stockpiling, the Contractor shall submit a plan for approval to the District proposing a satisfactory method of sampling and testing the RAP/FRAP pile either in-situ or by restockpiling. The sampling plan shall meet the minimum frequency required above and detail the procedure used to obtain representative samples throughout the pile for testing.

Before extraction, each field sample shall be split to obtain two samples of test sample size. One of the two test samples from the final split shall be labeled and stored for Department use. The Contractor shall extract the other test sample according to Department procedure. The Engineer reserves the right to test any sample (split or Department-taken) to verify Contractor test results.

Evaluation of Test Results. All of the extraction results shall be compiled and averaged for asphalt binder content and gradation and, when applicable (for slag) G_{mm} . Individual extraction test results, when compared to the averages, will be accepted if within the tolerances listed below.

Parameter	FRAP	Conglomerate "D" Quality RAP
1 in. (25 mm)		± 5 %
1/2 in. (12.5 mm)	± 8 %	± 15 %
No. 4 (4.75 mm)	± 6 %	± 13 %

No. 8 (2.36 mm)	± 5 %	
No. 16 (1.18 mm)		± 15 %
No. 30 (600 μm)	± 5 %	
No. 200 (75 μm)	± 2.0 %	± 4.0 %
Asphalt Binder	± 0.3 %	± 0.5 %
G _{mm}	± 0.03*	

* For steel and GGBFslag

If more than 20 percent of the individual sieves are out of the gradation tolerances, or if more than 20 percent of the asphalt binder content test results fall outside the appropriate tolerances, the RAP/FRAP shall not be used in HMA unless the RAP/FRAP representing the failing tests is removed from the stockpile. All test data and acceptance ranges shall be sent to the District for evaluation.

With the approval of the Engineer, the ignition oven may be substituted for extractions according to the Illinois Test Procedure, "Calibration of the Ignition Oven for the Purpose of Characterizing Reclaimed Asphalt Pavement (RAP)".

1031.04 Quality Designation of Aggregate in RAP/FRAP.

(a) The aggregate quality of the RAP for FRAP, conglomerate, and conglomerate "D" quality stockpiles shall be set by the lowest quality of coarse aggregate in the RAP stockpile and are designated as follows.

- (1) RAP from Class I, Superpave (High ESAL)/HMA (High ESAL), or HMA (Low ESAL) IL-9.5L surface mixtures are designated as containing Class B quality coarse aggregate.
- (2) RAP from Superpave (Low ESAL)/HMA (Low ESAL) IL-19.0L binder mixture is designated as Class D quality coarse aggregate.
- (3) RAP from Class I, Superpave (High ESAL), or HMA (High ESAL) binder mixtures, bituminous base course mixtures, and bituminous base course widening mixtures are designated as containing Class C quality coarse aggregate.
- (4) RAP from bituminous stabilized subbase and BAM shoulders are designated as containing Class D quality coarse aggregate.

(b) The aggregate quality of FRAP shall be determined as follows.

- (1) If the Engineer has documentation of the quality of the FRAP aggregate, the Contractor shall use the assigned quality provided by the Engineer. If the quality is not known, the quality shall be determined according to the following note (2):.
- (2) Fractionated stockpiles containing plus #4 (4.75mm) sieve coarse aggregate shall have a maximum tonnage of 5000 tons (4500 metric tons). The Contractor shall obtain a representative sample witnessed by the Engineer. The sample shall be a minimum of 50 lb (25kg). The sample shall be extracted according to Illinois Modified AASHTO T 164 by a consultant prequalified by the Department for the

specified testing. The consultant shall submit the test results along with the recovered aggregate to the District Office. The cost for this testing shall be paid by the Contractor. The District will forward the sample to the BMPR Aggregate Lab for MicroDeval Testing, according to Illinois Modified AASHTO T 327. A maximum loss of 15.0 percent will be applied for all HMA applications.”

1031.05 Use of FRAP in HMA. The use of FRAP shall be a Contractor’s option when constructing HMA in all contracts. All RAP used in Superpave (High and Low ESAL) or equivalent mixtures will be processed and called FRAP. The use of FRAP in HMA shall be as follows.

- (a) Coarse Aggregate Size (after extraction). The coarse aggregate in all FRAP shall be equal to or less than the maximum size requirement for the HMA mixture to be produced.
- (b) Steel Slag Stockpiles. RAP stockpiles containing steel slag or other expansive material, as determined by the Department, shall be homogeneous and will be approved for use in HMA (High ESAL and Low ESAL) surface mixtures only.
- (c) Use in HMA Surface Mixtures (High and Low ESAL). FRAP and Restricted FRAP stockpiles for use in HMA surface mixtures (High and Low ESAL) shall be in which the coarse aggregate is Class B quality or better. RAP/FRAP shall be considered equivalent to Limestone for frictional considerations unless produced/screened to minus 3/8 inch.
- (d) Use in HMA Binder Mixtures (High and Low ESAL), HMA Base Course, and HMA Base Course Widening. RAP/FRAP stockpiles for use in HMA binder mixtures (High and Low ESAL), HMA base course, and HMA base course widening shall be FRAP in which the coarse aggregate is Class C quality or better.
- (e) Use in Shoulders and Subbase. FRAP stockpiles for use in HMA shoulders and stabilized subbase (HMA) shall be FRAP, conglomerate, conglomerate DQ, or FRAP (DQ).
- (f) The percentage of FRAP shall not exceed the amounts indicated in the tables below for a given N Design.

(1) Level 1 FRAP Percentage

HMA Mixtures ^{1/, 2/}	Level 1 - Maximum % FRAP		
	Binder/Leveling Binder	Surface	Polymer ^{3/, 4/} Modified
30	35	25	15
50	35	25	15
70	35	25	15
90	35	25	15
105	35	25	15

(2) Level 2 FRAP Percentage with Hamburg wheel testing

HMA Mixtures ^{1/, 2/}	Level 2 - Maximum % FRAP		
Ndesign	Binder/Leveling Binder	Surface	Polymer Modified ^{3/, 4/}
30	40	30	20
50	40	30	20
70	40	30	20
90	40	30	20
105	40	30	20

1/ For HMA "All Other" (shoulder and stabilized subbase) N30, the amount of FRAP or FRAP (DQ) shall not exceed 50 percent of the mixture.

2/ When FRAP exceeds 15 percent for all mixes, except for SMA and IL-4.75, the high and low virgin asphalt binder grades shall each be reduced by one grade (i.e. 20 percent FRAP would require a virgin asphalt binder grade of PG64-22 to be reduced to a PG58-28). If warm mix asphalt (WMA) technology is utilized, and production temperatures do not exceed 275°F (135 C) the high and low virgin asphalt binder grades shall each be reduced by one grade when FRAP exceeds 25 percent (i.e. 26 percent FRAP would require a virgin asphalt binder grade of PG64-22 to be reduced to a PG58-28).

3/ For SMA the maximum FRAP shall be 20 percent. When the FRAP usage in SMA exceeds 10 percent, the high and low virgin asphalt binder grade shall each be reduced by one grade (i.e. 15 percent asphalt binder replacement would require a virgin asphalt binder grade of PG76-22 to be reduced to a PG70-28).

4/ For IL-4.75 mix the amount of minus #4 fine fraction FRAP shall not exceed 30 percent. When the FRAP usage in IL-4.75 exceeds 10 percent, the high and low virgin asphalt binder grade shall each be reduced by one grade (i.e. 15 percent asphalt binder replacement would require a virgin asphalt binder grade of PG76-22 to be reduced to a PG70-28).

1031.06 HMA Mix Designs. At the Contractor's option, HMA mixtures may be constructed utilizing FRAP material meeting the above detailed requirements.

FRAP mix designs exceeding the Level 1 FRAP percentages shall be tested prior to submittal for verification, according to Illinois Modified AASHTO T324 (Hamburg Wheel) and shall meet the following requirements:

Asphalt Binder Grade	# Repetitions	Max Rut Depth (mm)
PG76-XX	20,000	12.5
PG70-XX	20,000	12.5
PG64-XX	10,000	12.5
PG58-XX	10,000	12.5

Note: For SMA designs the maximum rut depth is 6.0mm and for IL. 4.75 designs @ 15,000 repetitions the maximum rut depth is 9.0 mm.

FRAP designs shall be submitted for volumetric verification. If additional FRAP stockpiles are tested and found that no more than 20 percent of the results, as defined under "Testing" herein, are outside of the control tolerances set for the original FRAP stockpile and HMA mix design, and meets all of the requirements herein, the additional FRAP stockpiles may be used in the original mix design at the percent previously verified.

1031.07 HMA Production. Mixture production where the FRAP percentage exceeds the Level 1 limits shall be sampled within the first 500 tons on the first day of production with a split reserved for the Department. The mix sample shall be tested according to Illinois Modified AASHTO T324 and shall meet the requirements specified herein. FRAP mix production shall not exceed 1,500 tons or one days production, which ever comes first, until the testing is completed and the mixture is found to be in conformance. The requirement to cease mix production may be waived if the plant produced FRAP mixture conformance is demonstrated prior to start of mix production for the contract.

To remove or reduce agglomerated material, a scalping screen, gator, crushing unit, or comparable sizing device approved by the Engineer shall be used in the RAP feed system to remove or reduce oversized material. If material passing the sizing device adversely affects the mix production or quality of the mix, the sizing device shall be set at a size specified by the Engineer.

If the RAP/FRAP control tolerances or QC/QA test results require corrective action, the Contractor shall cease production of the mixture containing FRAP and either switch to the virgin aggregate design or submit a new FRAP design.

HMA plants utilizing RAP/FRAP shall be capable of automatically recording and printing the following information.

(a) Dryer Drum Plants.

- (1) Date, month, year, and time to the nearest minute for each print.
- (2) HMA mix number assigned by the Department.
- (3) Accumulated weight of dry aggregate (combined or individual) in tons (metric tons) to the nearest 0.1 ton (0.1 metric ton).
- (4) Accumulated dry weight of RAP/FRAP in tons (metric tons) to the nearest 0.1 ton (0.1 metric ton).
- (5) Accumulated mineral filler in revolutions, tons (metric tons), etc. to the nearest 0.1 unit.
- (6) Accumulated asphalt binder in gallons (liters); tons (metric tons), etc. to the nearest 0.1 unit.

- (7) Residual asphalt binder in the RAP/FRAP material as a percent of the total mix to the nearest 0.1 percent.
 - (8) Aggregate and RAP/FRAP moisture compensators in percent as set on the control panel. (Required when accumulated or individual aggregate and RAP/FRAP are printed in wet condition.)
 - (9) Accumulated Mixture Tonnage
 - (10) Dust removed (accumulated to nearest 0.1 ton)
- (b) Batch Plants.
- (1) Date, month, year, and time to the nearest minute for each print.
 - (2) HMA mix number assigned by the Department.
 - (3) Individual virgin aggregate hot bin batch weights to the nearest pound (kilogram).
 - (4) Mineral filler weight to the nearest pound (kilogram).
 - (5) RAP/FRAP weight to the nearest pound (kilogram).
 - (6) Virgin asphalt binder weight to the nearest pound (kilogram).
 - (7) Residual asphalt binder in the RAP/FRAP material as a percent of the total mix to the nearest 0.1 percent.

The printouts shall be maintained in a file at the plant for a minimum of one year or as directed by the Engineer and shall be made available upon request. The printing system will be inspected by the Engineer prior to production and verified at the beginning of each construction season thereafter.

1031.08 RAP in Aggregate Surface Course and Aggregate Shoulders. The use of RAP in aggregate surface course and aggregate shoulders shall be as follows.

- (a) Stockpiles and Testing. RAP stockpiles may be any of those listed in Article 1031.02, except "Non-Quality" and "FRAP". The testing requirements of Article 1031.03 shall not apply.
- (b) Gradation. One hundred percent of the RAP material shall pass the 1 ½ in. (37.5mm) sieve. The RAP material shall be reasonably well graded from coarse to fine. RAP material that is gap-graded, FRAP, or single sized will not be accepted for use as Aggregate Surface Course and Aggregate Shoulders."

GENERAL ELECTRICAL REQUIREMENTS

Effective: January 1, 2007

Add the following to Article 801 of the Standard Specifications:

"Maintenance transfer and Preconstruction Inspection:

General. Before performing any excavation, removal, or installation work (electrical or otherwise) at the site, the Contractor shall request a maintenance transfer and preconstruction site inspection, to be held in the presence of the Engineer and a representative of the party or parties responsible for maintenance of any lighting and/or traffic control systems which may be affected by the work. The request for the maintenance transfer and preconstruction inspection shall be made no less than seven (7) calendar days prior to the desired inspection date. The maintenance transfer and preconstruction inspection shall:

Establish the procedures for formal transfer of maintenance responsibility required for the construction period.

Establish the approximate location and operating condition of lighting and/or traffic control systems which may be affected by the work

Marking of Existing Cable Systems. The party responsible for maintenance of any existing lighting and/or traffic control systems at the project site will, at the Contractor's request, mark and/or stake, once per location, all underground cable routes owned or maintained by the State. A project may involve multiple "locations" where separated electrical systems are involved (i.e. different controllers). The markings shall be taken to have a horizontal tolerance of at least 304.8 mm (one (1) foot) to either side.. The request for the cable locations and marking shall be made at the same time the request for the maintenance transfer and preconstruction inspection is made. The Contractor shall exercise extreme caution where existing buried cable runs are involved. The markings of existing systems are made strictly for assistance to the Contractor and this does not relieve the Contractor of responsibility for the repair or replacement of any cable run damaged in the course of his work, as specified elsewhere herein. Note that the contractor shall be entitled to only one request for location marking of existing systems and that multiple requests may only be honored at the contractor's expense. No locates will be made after maintenance is transferred, unless it is at the contractor's expense.

Condition of Existing Systems. The Contractor shall conduct an inventory of all existing electrical system equipment within the project limits, which may be affected by the work, making note of any parts which are found broken or missing, defective or malfunctioning. Megger and load readings shall be taken for all existing circuits which will remain in place or be modified. If a circuit is to be taken out in its entirety, then readings do not have to be taken. The inventory and test data shall be reviewed with and approved by the Engineer and a record of the inventory shall be submitted to the Engineer for the record. Without such a record, all systems transferred to the Contractor for maintenance during construction shall be returned at the end of construction in complete, fully operating condition."

Revise the 6th paragraph of Article 801.05(a) of the Standard Specifications to read:

“Resubmittals. All submitted items reviewed and marked ‘APPROVED AS NOTED’, or ‘DISAPPROVED’ are to be resubmitted in their entirety with a disposition of previous comments to verify contract compliance at no additional cost to the state unless otherwise indicated within the submittal comments.”

Revise Article 801.11(a) of the Standard Specifications to read:

“Lighting Operation and Maintenance Responsibility. The scope of work shall include the assumption of responsibility for the continuing operation and maintenance the of existing, proposed, temporary, sign and navigation lighting, or other lighting systems and all appurtenances affected by the work as specified elsewhere herein. Maintenance of lighting systems will be paid for separately”

Add the following to Section 801.11(a) of the Standard Specifications:

“Energy and Demand Charges. The payment of basic energy and demand charges by the electric utility for existing lighting which remains in service will continue as a responsibility of the Owner, unless otherwise indicated. Unless otherwise indicated or required by the Engineer duplicate lighting systems (such as temporary lighting and proposed new lighting) shall not be operated simultaneously at the Owner's expense and lighting systems shall not be kept in operation during long daytime periods at the Owner's expense. Upon written authorization from the Engineer to place a proposed new lighting system in service, whether the system has passed final acceptance or not, (such as to allow temporary lighting to be removed), the Owner will accept responsibility for energy and demand charges for such lighting, effective the date of authorization. All other energy and demand payments to the utility shall be the responsibility of the Contractor until final acceptance.”

Add the following to Section 801 of the Standard Specifications:

“Lighting Cable Identification. Each wire installed shall be identified with its complete circuit number at each termination, splice, junction box or other location where the wire is accessible.”

“Lighting Cable Fuse Installation. Standard fuse holders shall be used on non-frangible (non-breakaway) light pole installations and quick-disconnect fuse holders shall be used on frangible (breakaway) light pole installations. Wires shall be carefully stripped only as far as needed for connection to the device. Over-stripping shall be avoided. An oxide inhibiting lubricant shall be applied to the wire for minimum connection resistance before the terminals are crimped-on. Crimping shall be performed in accordance with the fuse holder manufacturer's recommendations. The exposed metal connecting portion of the assembly shall be taped with two half-lapped wraps of electrical tape and then covered by the specified insulating boot. The fuse holder shall be installed such that the fuse side

is connected to the pole wire (load side) and the receptacle side of the holder is connected to the line side.”

Revise the 2nd and 3rd sentences of the second paragraph of Article 801.02 of the Standard Specifications to read:

“Unless otherwise indicated, materials and equipment shall bear the UL label, or an approved equivalent, whenever such labeling is available for the type of material or equipment being furnished.”

UNDERGROUND RACEWAYS (DISTRICT ONE)

Effective: January 1, 2007

Revise Article 810.03 of the Standard Specifications to read:

“Installation. All underground conduit shall have a minimum depth of 30--inches (700 mm) below the finished grade.”

Add the following to Article 810.03 of the Standard Specifications:

“All metal conduit installed underground shall be Rigid Steel Conduit unless otherwise indicated on the plans.”

Add the following to Article 810.03 of the Standard Specifications:

“All raceways which extend outside of a structure or duct bank but are not terminated in a cabinet, junction box, pull box, handhole, post, pole, or pedestal shall extend a minimum of 300 mm (12”) or the length shown on the plans beyond the structure or duct bank. The end of this extension shall be capped and sealed with a cap designed for the conduit to be capped. The ends of rigid metal conduit to be capped shall be threaded, the threads protected with full galvanizing, and capped with a threaded galvanized steel cap. The ends of rigid nonmetallic conduit and coilable nonmetallic conduit shall be capped with a rigid PVC cap of not less than 3 mm (0.125”) thick. The cap shall be sealed to the conduit using a room-temperature-vulcanizing (RTV) sealant compatible with the material of both the cap and the conduit. A washer or similar metal ring shall be glued to the inside center of the cap with epoxy, and the pull cord shall be tied to this ring.”

Add the following to Article 810.03(c) of the Standard Specifications:

“Coilable non-metallic conduit shall be machine straightened to remove the longitudinal curvature caused by coiling the conduit onto reels prior to installing in trench, encasing in concrete or embedding in structure. The straightening shall not deform the cross-section of the conduit such that any two measured outside diameters, each from any location and at any orientation around the longitudinal axis along the conduit differ by more than 6 mm (0.25”).” The longitudinal axis of the straightened conduit shall not deviate by more than 20 mm per meter (0.25” per foot” from a straight line. The HDPE and straightening mechanism manufacturer operating temperatures shall be followed.

EXPOSED RACEWAYS

Effective: January 1, 2007

Revise the first paragraph of Article 811.03(a) of the Standard Specifications to read:

"General. Rigid metal conduit installation shall be according to Article 810.03(a). Conduits terminating in junction and pull boxes shall be terminated with insulated and gasketed watertight threaded NEMA 4X conduit hubs. The hubs shall be Listed under UL 514B. The insulated throat shall be rated up to 105° C. When PVC coated conduit is utilized, the aforementioned hubs shall also be PVC coated."

Add the following to Article 811.03(b) of the Standard Specifications:

"Where PVC coated conduit is utilized, all conduit fittings, couplings and clamps shall be PVC coated. All other mounting hardware and appurtenances shall be stainless steel."

"The personnel installing the PVC coated conduit must be trained and certified by the PVC coated conduit Manufacturer or Manufacturer's representative to install PVC coated conduit. Documentation demonstrating this requirement must be submitted for review and approval."

Revise Article 1088.01(a) of the Standard Specifications to read:

"Couplings and fittings shall meet ANSI Standard C80.5 and U.L. Standard 6. Elbows and nipples shall conform to the specifications for conduit. All fittings and couplings for rigid conduit shall be of the threaded type. All conduit hubs shall be gasketed and watertight with an integral O-ring seal.

All iron and steel products, which are to be incorporated into the work, including conduit and all conduit fittings, shall be domestically manufactured or produced and fabricated as specified in Article 106."

Revise Article 1088.01(a)(3) of the Standard Specifications to read:

"a. PVC Coated Steel Conduit. The PVC coated rigid metal conduit shall be UL Listed (UL 6). The PVC coating must have been investigated by UL as providing the primary corrosion protection for the rigid metal conduit. Ferrous fittings for general service locations shall be UL Listed with PVC as the primary corrosion protection. Hazardous location fittings, prior to plastic coating shall be UL listed.

b. The PVC coating shall have the following characteristics:

Hardness:	85+Shore A Durometer
Dielectric Strength:	400V/mil @ 60 Hz
Aging:	1,000 Hours Atlas Weatherometer
Temperature	The PVC compound shall conform at 0° F. to Federal Specifications PL-406b, Method 2051, Amendment 1 of 25 September 1952 (ASTM D 746)
Elongation:	200%

- c. The exterior and interior galvanized conduit surface shall be chemically treated to enhance PVC coating adhesion and shall also be coated with a primer before the PVC coating to ensure a bond between the zinc substrate and the PVC coating. The bond strength created shall be greater than the tensile strength of the plastic coating.
- d. The nominal thickness of the PVC coating shall be 1 mm (40 mils). The PVC exterior and urethane interior coatings applied to the conduit shall afford sufficient flexibility to permit field bending without cracking or flaking at temperatures above -1°C (30°F).
- e. An interior urethane coating shall be uniformly and consistently applied to the interior of all conduit and fittings. This internal coating shall be a nominal 2 mil thickness. The interior coating shall be applied in a manner so there are no runs, drips, or pinholes at any point. The coating shall not peel, flake, or chip off after a cut is made in the conduit or a scratch is made in the coating.
- f. Conduit bodies shall have a tongue-in-groove gasket for maximum sealing capability. The design shall incorporate a positive placement feature to assure proper installation. Certified test results confirming seal performance at 15 psig (positive) and 25 in. of mercury (vacuum) for 72 hours shall be submitted for review when requested by the Engineer.
- g. The PVC conduit shall pass the following tests:

Exterior PVC Bond test RN1:

Two parallel cuts 13 mm (1/2 inch) apart and 40 mm (1 1/2 inches) in length shall be made with a sharp knife along the longitudinal axis. A third cut shall be made perpendicular to and crossing the longitudinal cuts at one end. The knife shall then be worked under the PVC coating for 13 mm (1/2 inch) to free the coating from the metal.

Using pliers, the freed PVC tab shall be pulled with a force applied vertically and away from the conduit. The PVC tab shall tear rather than cause any additional PVC coating to separate from the substrate.

Boil Test:

Acceptable conduit coating bonds (exterior and interior) shall be confirmed if there is no disbondment after a minimum average of 200 hours in boiling water or exposure to steam vapor at one atmosphere. Certified test results from a national recognized independent testing laboratory shall be submitted for review and approval. The RN1 Bond Test and the Standard Method for Measuring Adhesion by Tape Test shall be utilized.

Exterior Adhesion. In accordance with ASTM D870, a 6" length of conduit test specimen shall be placed in boiling water. The specimen shall be periodically removed, cooled to ambient temperature and immediately tested according to the bond test (RN1). When the PVC coating separates from the substrate, the boil time to failure in hours shall be recorded.

Interior Adhesion. In accordance with ASTM D3359, a 6" conduit test specimen shall be cut in half longitudinally and placed in boiling water or directly above boiling water with the urethane surface facing down. The specimen shall be periodically removed, cooled to ambient temperature and tested in accordance with the Standard Method of Adhesion by Tape Test (ASTM D3359). When the coating disbonds, the time to failure in hours shall be recorded.

Heat/Humidity Test:

Acceptable conduit coating bonds shall be confirmed by a minimum average of 30 days in the Heat and Humidity Test. The RN1 Bond Test and the Standard Method for Measuring Adhesion by Tape Test shall be utilized.

Exterior Adhesion. In accordance with ASTM D1151, D1735, D2247 and D4585, conduit specimens shall be placed in a heat and humidity environment where the temperature is maintained at 150°F (66°C) and 95% relative humidity. The specimens shall be periodically removed and a bond test (RN1) performed. When the PVC coating separates from the substrate, the exposure time to failure in days shall be recorded.

Interior Adhesion. In accordance with ASTM D3359, conduit specimens shall be placed in a heat and humidity environment where the temperature is maintained at 150°F (66°C) and 95% relative humidity. When the coating disbonds, the time to failure in hours shall be recorded.

Add the following to Article 1088.01(a)(4) of the Standard Specifications:

"All liquid tight flexible metal conduit fittings shall have an insulated throat to prevent abrasion of the conductors and shall have a captive sealing O-ring gasket. The fittings shall be Listed under UL 514B. The insulated throat shall be rated up to 105° C."

Revise Article 811.05 of the Standard Specifications to read:

"811.05 Basis of Payment. This work will be paid for at the contract unit price per meter (foot) for CONDUIT ATTACHED TO STRUCTURE, of the diameter specified, RIGID GALVANIZED STEEL or CONDUIT ATTACHED TO STRUCTURE, of the diameter specified, RIGID GALVANIZED STEEL, PVC COATED."

UNIT DUCT (DISTRICT ONE)

Effective: January 1, 2007

Revise the second paragraph of Article 816.03(a) to read:

"The unit duct shall be installed at a minimum depth of 760 mm (30-inches) unless otherwise directed by the Engineer."

Revise Article 1088.01(c) to read:

"(c) Coilable Nonmetallic Conduit,

General:

The duct shall be a plastic duct which is intended for underground use and which can be manufactured and coiled or reeled in continuous transportable lengths and uncoiled for further processing and/or installation without adversely affecting its properties of performance. The duct shall be a plastic duct which is intended for underground use and can be manufactured and coiled or reeled in continuous transportable lengths and uncoiled for further processing and/or installation without adversely affecting its properties of performance.

The duct shall be made of high density polyethylene which shall meet the requirements of ASTM D 2447, for schedule 40. The duct shall be composed of black high density polyethylene meeting the requirements of ASTM D 3350, Class C, Grade P33. The wall thickness shall be in accordance with Table 2 for ASTM D 2447.

The duct shall be UL Listed per 651-B for continuous length HDPE coiled conduit. The duct shall also comply with NEC Article 354.100 and 354.120.

Submittal information shall demonstrate compliance with the details of these requirements.

Dimensions:

Duct dimensions shall conform to the standards listed in ASTM D2447. Submittal information shall demonstrate compliance with these requirements.

Nominal Size		Nominal I.D.		Nominal O.D.		Minimum Wall	
mm	in	mm	in	mm	in	mm	in
31.75	1.25	35.05	1.38	42.16	1.66	3.556	0.140
						+0.51	+0.020
38.1	1.5	40.89	1.61	48.26	1.90	3.683	0.145
						+0.51	+0.020

Nominal Size		Pulled Tensile	
mm	in	N	Lbs
31.75	1.25	3322	747
38.1	1.50	3972	893

Marking:

As specified in NEMA Standard Publication No. TC-7, the duct shall be clearly and durably marked at least every 3.05 meters (10 feet) with the material designation (HDPE for high density polyethylene), nominal size of the duct and the name and/or trademark of the manufacturer.

Performance Tests:

Polyethylene Duct testing procedures and test results shall meet the requirements of UL 651. Certified copies of the test report shall be submitted to the Engineer prior to the installation of the duct. Duct crush test results shall meet or exceed the following requirements:

Duct Diameter		Min. force required to deform sample 50%	
mm	in	N	Lbs
35	1.25	4937	1110
41	1.5	4559	1025

WIRE AND CABLE (DISTRICT ONE)

Effective: January 1, 2007

Revise the second sentence of the first paragraph of Article 1066.02(a) to read:

“The cable shall be rated at a minimum of 90°C dry and 75°C wet and shall be suitable for installation in wet and dry locations, and shall be resistant to oils and chemicals.”

Revise the second paragraph of Article 1066.02(b) to read:

“Uncoated conductors shall be according to ASTM B3, ICEA S-95-658/NEMA WC70, and UL Standard 44. Coated conductors shall be according to ASTM B 33, ASTM B 8, ICEA S-95-658/NEMA WC70 and UL Standard 44.”

Revise the third paragraph of Article 1066.02(b) to read:

"All conductors shall be stranded. Stranding meeting ASTM B 8, ICEA S-95658/NEMA WC70 and UL Standard 44. Uncoated conductors meeting ASTM B 3, ICEA S-95-658/NEMA WC70 and UL Standard 44."

Revise the first sentence of Article 1066.03(a)(1) to read:

"General. Cable insulation designated as XLP shall incorporate cross-linked polyethylene (XLP) insulation as specified and shall meet or exceed the requirements of ICEA S-95-658, NEMA WC70, U.L. Standard 44."

Add the following to Article 1066.03(a)(1) of the Standard Specifications:

"The cable shall be rated 600 volts and shall be UL Listed Type RHH/RHW/USE."

Revise the Aerial Electric Cable Properties table of Article 1066.03(a)(3) to read:

Aerial Electric Cable Properties

Size AWG	Phase Conductor		Messenger Wire		
	Stranding	Average Insulation Thickness		Minimum Size AWG	Stranding
		mm	mils		
6	7	1.1	(45)	6	6/1
4	7	1.1	(45)	4	6/1
2	7	1.1	(45)	2	6/1
1/0	19	1.5	(60)	1/0	6/1
2/0	19	1.5	(60)	2/0	6/1
3/0	19	1.5	(60)	3/0	6/1
4/0	19	1.5	(60)	4/0	6/1

Revise the first paragraph of Articles 1066.03(b) to read:

"EPR Insulation. Cable insulation shall incorporate ethylene propylene rubber (EPR) as specified and the insulation shall meet or exceed the requirements of ICEA S-95-658, NEMA Standard Publication No. WC70, and U.L. Standard 44, as applicable."

Add the following to Article 1066.03(b) of the Standard Specifications:

"Cable size No. 2 AWG and smaller shall be U.L. listed Type RHH/RHW and may be Type RHH/RHW/USE. Cable sized larger than No. 2 AWG shall be U.L. listed Type RHH/RHW/USE."

Revise Article 1066.04 to read:

"Aerial Cable Assembly. The aerial cable shall be an assembly of insulated aluminum conductors according to section 1066.02 and 1066.03. Unless otherwise indicated, the cable assembly shall be composed of three insulated conductors and a steel reinforced bare aluminum conductor (ACSR) to be used as the ground conductor. Unless otherwise indicated, the code word designation of this cable assembly is "Palomino".

The steel reinforced aluminum conductor shall conform to ASTM B-232. The cable shall be assembled according to ANSI/ICEA S-76-474.”

Revised the second paragraph of Article 1066.05 to read:

“The tape shall have reinforced metallic detection capabilities consisting of a woven reinforce polyethylene tape with a metallic core or backing.”

Revise Article 1066.08 to read:

“Electrical Tape. Electrical tape shall be all weather vinyl plastic tape resistant to abrasion, puncture, flame, oil, acids, alkalis, and weathering, conforming to Federal Specification MIL-I-24391, ASTM D1000 and shall be listed under UL 510 Standard. Thickness shall not be less than 0.215 mm (8.5 mils and width shall not be less than 20 mm (3/4-inch).”

LUMINAIRE

Effective: January 1, 2011

Add the following to first paragraph of Article 1067(c) of the Standard Specifications:

“The reflector shall not be altered by paint or other opaque coatings which would cover or coat the reflecting surface. Control of the light distribution by any method other than the reflecting material and the aforementioned clear protective coating that will alter the reflective properties of the reflecting surface is unacceptable”

Add the following to Article 1067(e) of the Standard Specifications:

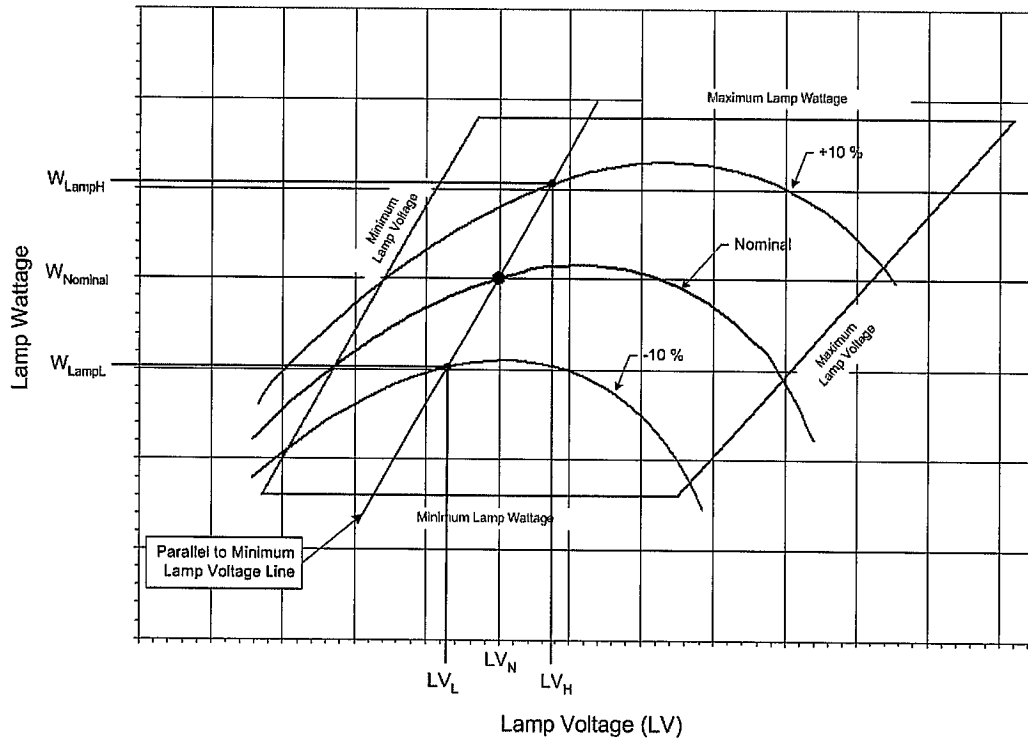
“The ballast shall be a High Pressure Sodium, high power factor, constant wattage auto-regulator, lead type (CWA) for operation on a nominal 240 volt system.”

Revise Article 1067(e)(1) of the Standard Specifications to read:

“The high pressure sodium, auto-regulator, lead type (CWA) ballast shall be designed to ANSI Standards and shall be designed and rated for operation on a nominal 240 volt system. The ballast shall provide positive lamp ignition at the input voltage of 216 volts. It shall operate the lamp over a range of input voltages from 216 to 264 volts without damage to the ballast. It shall provide lamp operation within lamp specifications for rated lamp life at input design voltage range. Operating characteristics shall produce output regulation not exceeding the following values:

Nominal Ballast Wattage	Maximum Ballast Regulation
750	25%
400	26%
310	26%
250	26%
150	24%
70	18%

For this measure, regulation shall be defined as the ratio of the lamp watt difference between the upper and lower operating curves to the nominal lamp watts; with the lamp watt difference taken within the ANSI trapezoid at the nominal lamp operating voltage point parallel to the minimum lamp volt line:



$$\text{Ballast Regulation} = \frac{W_{LampH} - W_{LampL}}{W_{LampN}} \times 100$$

where:

W_{LampH} = lamp watts at +10% line voltage when Lamp voltage = LV_H

W_{LampL} = lamp watts at -10% line voltage when lamp voltage = LV_L

W_{LampN} = lamp watts at nominal lamp operating voltage = LV_N

Wattage	Nominal Lamp Voltage, LV_N	LV_L	LV_H
750	120v	115v	125v
400	100v	95v	105v
310	100v	95v	105v
250	100v	95v	105v
150	55v	50v	60v
70	52v	47v	57v

Ballast losses, based on cold bench tests, shall not exceed the following values:

Nominal Ballast Wattage	Maximum Ballast Losses
750	15%
400	20%
310	21%
250	24%
150	26%
70	34%

Ballast losses shall be calculated based on input watts and lamp watts at nominal system voltage as indicated in the following equation:

$$\text{Ballast Losses} = \frac{W_{Line} - W_{Lamp}}{W_{Lamp}} \times 100$$

where:

W_{line} = line watts at nominal system voltage

W_{lamp} = lamp watts at nominal system voltage

Ballast output to lamp. At nominal system voltage and nominal lamp voltage, the ballast shall deliver lamp wattage with the variation specified in the following table.

Nominal Ballast Wattage	Output to lamp variation
750	± 7.5%
400	± 7.5%
310	± 7.5%
250	± 7.5%
150	± 7.5%
70	± 7.5%

Example: For a 400w luminaire, the ballast shall deliver 400 watts ±7.5% at a lamp voltage of 100v for the nominal system voltage of 240v which is the range of 370w to 430w.

Ballast output over lamp life. Over the life of the lamp the ballast shall produce average output wattage of the nominal lamp rating as specified in the following table. Lamp wattage readings shall be taken at 5-volt increments throughout the ballast trapezoid. Reading shall begin at the lamp voltage (L_V) specified in the table and continue at 5 volt increments until the right side of the trapezoid is reached. The lamp wattage values shall then be averaged and shall be within the specified value of the nominal ballast rating. Submittal documents shall include a tabulation of the lamp wattage vs. lamp voltage readings.

Nominal Ballast Wattage	LVReadings begin at	Maximum Wattage Variation
750	110v	$\pm 7.5\%$
400	90v	$\pm 7.5\%$
310	90v	$\pm 7.5\%$
250	90v	$\pm 7.5\%$
150	50v	$\pm 7.5\%$
70	45v	$\pm 7.5\%$

Example: For a 400w luminaire, the averaged lamp wattage reading shall not exceed the range of $\pm 7.5\%$ which is 370w to 430w"

Add the following to Article 1067(f) of the Standard Specifications:

"Independent Testing. Independent testing of luminaires shall be required whenever the pay item quantity of luminaires of a given pay item, as indicated on the plans, is 50 or more. For each luminaire type to be so tested, one luminaire plus one luminaire for each 50 luminaires shall be tested. Example: A plan pay item quantity of 75 luminaires for a specific pay item would dictate that 2 be tested; 135 luminaires would dictate that three be tested." If the luminaire performance table is missing from the contract documents, the luminaire(s) shall be tested and the test results shall be evaluated against the manufacturer's data as provided in the approved material submittal. The test luminaire(s) results shall be equal to or better than the published data. If the test results indicated performance not meeting the published data, the test luminaire will be designated as failed and corrective action as described herein shall be performed.

The Contractor shall be responsible for all costs associated with the specified testing, including but not limited to shipping, travel and lodging costs as well as the costs of the tests themselves, all as part of the bid unit price for this item. Travel, lodging and other associated costs for travel by the Engineer shall be direct-billed to or shall be pre-paid by the Contractor, requiring no direct reimbursement to the Engineer or the independent witness, as applicable"

The Contractor shall select one of the following options for the required testing with the Engineer's approval:

- a. Engineer Factory Selection for Independent Lab: The Contractor may select this option if the luminaire manufacturing facility is within the state of Illinois. The Contractor shall propose an independent test laboratory

for approval by the Engineer. The selected luminaires shall be marked by the Engineer and shipped to the independent laboratory for tests.

- b. Engineer Witness of Independent Lab Test: The Contractor may select this option if the independent testing laboratory is within the state of Illinois. The Engineer shall select, from the project luminaires at the manufacturer's facility or at the Contractor's storage facility, luminaires for testing by the independent laboratory.
- c. Independent Witness of Manufacturer Testing: The independent witness shall select from the project luminaires at the manufacturers facility or at the Contractor's storage facility, the luminaires for testing. The Contractor shall propose a qualified independent agent, familiar with the luminaire requirements and test procedures, for approval by the Engineer, to witness the required tests as performed by the luminaire manufacturer.

The independent witness shall as a minimum meet the following requirements:

- ▶ Have been involved with roadway lighting design for at least 15 years.
- ▶ Not have been the employee of a luminaire or ballast manufacturer within the last 5 years.
- ▶ Not associated in any way (plan preparation, construction or supply) with the particular project being tested.
- ▶ Be a member of IESNA in good standing.
- ▶ Provide a list of professional references.

This list is not an all inclusive list and the Engineer will make the final determination as to the acceptability of the proposed independent witness.

- d. Engineer Factory Selection and Witness of Manufacturer Testing: The Contractor may select this option if the luminaire manufacturing facility is within the state of Illinois. At the Manufacturer's facility, the Engineer shall select the luminaires to be tested and shall be present during the testing process. The Contractor shall schedule travel by the Engineer to and from the Manufacturer's laboratory to witness the performance of the required tests.

Should any of the tested luminaires fail to satisfy the specifications and perform according to approved submittal information, the luminaire shall be unacceptable and be replaced by alternate equipment meeting the specifications with the submittal and testing process repeated in their entirety; or corrections made to achieve required performance. In the case of corrections, the Contractor shall advise the Engineer of corrections made and shall request a repeat of the specified testing and, if the corrections are deemed reasonable by the Engineer, the testing process shall be repeated. The number of luminaires to be tested shall be the same quantity as originally tested; i.e. if three luminaires were tested originally, one, two or three failed, another three must be tested after corrective action is taken.

Add the following to Article 1067.02(a)(1) of the Standard Specifications:

“The beam of maximum candlepower for luminaires specified or shown to have a ‘medium’ distribution shall be at 70 degrees from the horizontal \pm 2.5 degrees. Submittal information shall identify the angle.”

Revise Article 1067.06(a)(1) of the Standard Specifications to read:

“The lamps shall be of the clear type and shall have a color of 1900° to 2200° Kelvin.”

Add the following table(s) to Article 1067 of the Standard Specifications:

IDOT DISTRICT 1 LUMINAIRE PERFORMANCE TABLE

GIVEN CONDITIONS		
ROADWAY DATA	Pavement Width	36 (ft) (12' median)
	Number of Lanes	
	I.E.S. Surface Classification	R3
	Q-Zero Value	.07
LIGHT POLE DATA	Mounting Height	47.5 (ft)
	Mast Arm Length	15 (ft)
	Pole Set-Back From Edge of Pavement	13 (ft)
LUMINAIRE DATA	Lamp Type	HPS
	Lamp Lumens	27,500
	I.E.S. Vertical Distribution	Medium
	I.E.S. Control Of Distribution	Cutoff
	I.E.S. Lateral Distribution	Type III
	Total Light Loss Factor	0.684
LAYOUT DATA	Spacing	140 (ft)
	Configuration	Single Sided
	Luminaire Overhang over edge of pavement	2 (ft)

NOTE: Variations from the above specified I.E.S. distribution pattern may be requested and acceptance of variations will be subject to review by the Engineer based on how well the performance requirements are met.

PERFORMANCE REQUIREMENTS

NOTE: These performance requirements shall be the minimum acceptable standards of photometric performance for the luminaire, based on the given conditions listed above.

ILLUMINATION	Ave. Horizontal Illumination, E_{AVE}	0.9 fc/ 9.0 Lux
	Uniformity Ratio, E_{AVE}/E_{MIN}	3.0 (Max)
LUMINANCE	Average Luminance, L_{AVE}	0.6 Cd/m ²
	Uniformity Ratio, L_{AVE}/L_{MIN}	3.5 (Max)
	Uniformity Ratio, L_{MAX}/L_{MIN}	6.0 (Max)
	Veiling Luminance Ratio, L_V/L_{AVE}	0.3 (Max)

PROJECT SPECIFIC SPECIAL PROVISIONS

TRENCH BACKFILL, (SPECIAL)

Description: This work consist of, but is not limited to, furnishing all labor, tools, equipment and material necessary for the installation of trench backfill over the watermain on all roads and storm sewer along Red Gate Road to the lines and grades shown on the Plans, specified, or as directed by the Engineer

General Requirements: All trenches within (3) feet of paved surfaces, or at a distance specified by the Engineer, shall be backfilled with CA-7 (Virgin Crushed Limestone). All backfill material shall be properly compacted unless otherwise directed by the Engineer. Compaction shall be done by mechanical compaction methods. Water jetting for compaction is not acceptable. Contractor must comply with any backfill requirements by the agency or unit of local government responsible for the roadway.

Material acceptance: The Contractor must provide certification trench backfill materials meet the IDOT Specifications for CA-7.

Method of measurement: Work under this item will be measured as the length of Ductile Iron Water Main or storm sewer times the average depth of the trench backfill times the trench width as Specified Trench Width as defined in the Standard Specifications for Water and Sewer Construction in Illinois.

Basis of payment: This work will be paid for at the contract unit price per cubic yard for TRENCH BACKFILL, (SPECIAL). The price of this item will include backfill, compaction, and all other work required to complete the backfilling of the water main and storm sewer installation as specified.

HOT-MIX ASPHALT SURFACE REMOVAL, VARIABLE DEPTH

Description: This work shall be performed in accordance with Section 440 of the Standard Specifications except as herein modified.

General Requirements: The existing HMA surface shall be variable depth milled. The milling depth will be established such that the proposed profile grade and cross slopes as indicated on the plans are achieved after placement of the proposed surface course.

Method of Measurement: HMA surface removal for subsequent resurfacing will be measured for payment in place and the are computed in square yards.

Basis of Payment: This work will be paid at the contract unit price per square yard for HOT-MIX ASPHALT SURFACE REMOVAL, VARIABLE DEPTH.

GRATING FOR CONCRETE FLARED END SECTION – 15”
GRATING FOR CONCRETE FLARED END SECTION – 42”

Description: This work consist of, but is not limited to, furnishing all labor, tools, equipment and material necessary for the installation of metal grating for concrete flared end sections of the type and size specified.

Materials: All materials shall meet the applicable requirements as referenced in Section 542.07.

General Requirements: Grating for Concrete Flared End Section shall be in accordance with the applicable portions of Section 542 of the Standard Specifications.

Method of Measurement: Grating for concrete flared end sections shall be paid for per each.

Basis of Payment: This work will be paid at the contract unit price per each for GRATING FOR CONCRETE FLARED END SECTION, of the size specified, and shall include the cost of furnishing and installation of the grating.

WATER VALVES 12”
WATER VALVES 16”

DESCRIPTION: This item consists of, but is not limited to, all labor, material, and equipment necessary to install gate valves shown on the plans, as specified, or directed by the Engineer.

GENERAL REQUIREMENTS: 4” through 16” diameter right-hand closing resilient wedge gate valves, conforming to AWWA Standard C-509 as manufactured by the Clow Corporation, Waterous Company or approved equal. All below grade factory installed bolts and fasteners shall be 304-grade stainless steel.

MATERIAL ACCEPTANCE: The Contractor must provide a Manufacturer’s catalog cuts showing materials meet the Specifications.

METHOD OF MEASUREMENT: Work under this item will be measured per valve installed, as determined by the Engineer.

BASIS OF PAYMENT: This work will be paid for at the contract unit price each for WATER VALVES, of the size specified. The prices of this item will include fittings, gaskets, and the provision and proper installation of all gland nuts and bolts and all other work required to complete the valve installation.

TAPPING VALVES AND SLEEVES, 12”
TAPPING VALVES AND SLEEVES, 16”

DESCRIPTION: This item consists of, but is not limited to, all labor, material, and equipment necessary to install tapping valve and sleeve shown on the plans, as specified, or directed by the Engineer.

GENERAL REQUIREMENTS: Mechanical tapping sleeve shall be Mueller H-615 cast iron or approved equal. Flange fasteners shall be 304-grade stainless steel. Valves shall be right-hand

closing resilient wedge gate valves, conforming to AWWA Standard C-509 as manufactured by the Clow Corporation, Waterous Company or approved equal. All below grade factory installed bolts and fasteners shall be 304-grade stainless steel.

MATERIAL ACCEPTANCE: The Contractor must provide a Manufacturer's catalog cuts showing materials meet the Specifications.

METHOD OF MEASUREMENT: Work under this item will be measured per tapping valve and sleeve installed, as determined by the Engineer.

BASIS OF PAYMENT: This work will be paid for at the contract unit price each for TAPPING VALVES AND SLEEVES, of the size specified. The prices of this item will include fittings, gaskets, and the provision and proper installation of all gland nuts and bolts and all other work required to complete the valve installation.

FIRE HYDRANT AND VALVE (SPECIAL)

DESCRIPTION: This work will consist of furnishing and placing fire hydrant and valve at locations shown in the plans.

GENERAL REQUIREMENTS: Models (or approved equal): (Refer to standard Fire Hydrant Detail)

- a. Mueller Super Centurion 200
- b. Waterous Pacer Model WB-67-250
- c. Clow Medallion

All hydrants shall have 6" mechanical joint connection, 5 1/4" valve opening, 5" cover over hydrant lateral and 6" valve on lateral. "Hydrafinder" standard hydrant locator or approved equal shall be installed. Valve box shall have a valve box stabilizer installed (Valve box adaptor #2 type A, as made by Adaptor, Inc. or approved equal).

Fire Hydrant Paint: Safety Red, Sherwin Williams 'Shercryl' 6403-31922, B66R300 or approved equal. All below grade factory installed bolts and fasteners shall be 304-grade stainless steel.

All hydrant leads must be constructed of DIWM CL 52 with a minimum diameter of 6". Where hydrant leads are longer than 100', 8" diameter DIWM will be required.

Preformed concrete block thrust blocking shall be provided at all bends greater than 10 degrees. At all mechanical joint connections, and at all fire hydrants (refer to city thrust blocking detail). Fire hydrants shall be installed with a maximum extension of 36". Fire hydrant extension kits must be of the same manufacture as the hydrant, and must be installed according to the manufacturer's specifications.

MATERIAL ACCEPTANCE: The Contractor must provide a Manufacturer's catalog cuts showing materials meet the Specifications.

METHOD OF MEASUREMENT: Work under this item will be measured per hydrant installed, as determined by the Engineer.

BASIS OF PAYMENT: This work will be paid for at the contract unit price each for FIRE HYDRANT AND VALVE (SPECIAL). The prices of this item will include fittings, gaskets, hydrant leads, thrust restraints, and the provision and proper installation of all gland nuts and bolts and all other work required to complete the fire hydrant installation.

VALVE VAULTS, 5' DIAMETER

DESCRIPTION: This work will consist of furnishing and placing water valve basins with frames and lids at locations shown in the plans.

GENERAL REQUIREMENTS: Valve vaults shall meet the specifications outlined in Section 602 with the following additional details. Valve vaults are to be precast reinforced concrete, concentric type. A maximum of 8-inches of adjusting rings shall be used. All valve vault structures shall have a Neenah Foundry Company R-1713 frame and type "B" lid with concealed pick hole or approved equal. Lids shall be furnished with "City of St. Charles – Water" cast into the top surface (refer to City standard detail).

1. 8" and larger valves..... Min. 5' inside diameter vault minimum
2. Pressure Taps..... Min. 5' inside diameter vault minimum
3. Vaults are not required for hydrant auxiliary valves
4. Water main with a bury depth greater than 6.0' shall have steps installed in valve vaults.

All adjustments to valve vaults shall be made with precast concrete adjusting rings not to exceed a maximum of eight (8) inches overall in height. Water tight valve vaults shall be provided for each valve. Barrel sections shall be seated using (2) butyl rubber strips per tongue and groove section. Valve vaults are to be precast reinforced concrete, concentric type (refer to standard detail and materials section for sizing specifications). After final adjustments have been made, all joints in precast structures shall be mortared. The mortar shall be composed of one part cement to three parts sand, by volume, based on dry metals and shall be thoroughly wetted before laying. Vaults may on be extended to a maximum of 23" from the surface to the inside flare of the manhole cone section.

MATERIAL ACCEPTANCE: The Contractor must provide a Manufacturer's catalog cuts showing materials meet the Specifications and is produced by an approved supplier.

METHOD OF MEASUREMENT: Work under this item will be measured per vault installed, as determined by the Engineer.

BASIS OF PAYMENT: This work will be paid for at the contract unit price per each for VALVE VAULTS, 5' DIAMETER. The contract unit price will include the costs for all work, including but limited to the costs for labor, materials, supplies, and equipment, frame, lid, sand cushion, manhole structure and trench backfill. Any dewatering and/or sheeting or shoring required to do the work as specified, will not be paid for separately, but will be included in the contract unit price of this item.

RAIL BASE

Description: This work shall consist of constructing the foundation for the Steel Railing Special when the railing is specified adjacent to the roadway. This work will include furnishing and installing all concrete, reinforcement and dowels required to construct the railing base in accordance with the limits and details as shown in the plans.

Method of Measurement: This work will be measured for payment in feet in the flow line of the gutter portion of the railing base.

Basis of Payment: This work will be paid for at the contract unit price per FOOT for RAIL BASE which price shall include all material and labor required to complete the work as herein specified.

REMOVE EXISTING HANDHOLE

Description: This work consists of the removal of existing hand holes as designated in the contract plans and in accordance with Section 895.05 of the Standard Specifications.

General Requirements: The frame and cover of an existing handhole shall be broken off the top section of the handhole wall to a minimum depth of 3 ft (900 mm) below the surrounding grade, or as specified, backfilled with approved material, and the surface reconstructed to match the adjoining area. The concrete debris shall be disposed of outside the right-of-way, and the frame and cover disposed of as directed by the Engineer.

Method of Measurement: Work under this item will be measured on a per each basis.

Basis of Payment: Removal of existing handholes will be paid for at the contract unit price per each for REMOVE EXISTING HANDHOLE.

REMOVE EXISTING CONCRETE FOUNDATION

Description: This work shall be performed in accordance with the Standard Specifications and shall consist of the removal of existing concrete foundations as designated in the contract plans.

General Requirements: The concrete foundation shall be removed to a level at least 3 ft (900 mm) below the adjacent grade, backfilled with approved material, and the surface reconstructed to match the adjoining area. The foundation shall be disposed of outside the right-of-way. If the concrete foundation is located in the sidewalk area, the entire sidewalk square or squares where the concrete foundation is located shall be replaced with new sidewalk.

Method of Measurement: Work under this item will be measured on a per each basis.

Basis of Payment: Removal of existing concrete foundations will be paid for at the contract unit price per each for REMOVE EXISTING CONCRETE FOUNDATION.

PERENNIAL PLANTS, PRAIRIE TYPE, 2" DIA. X 4" DEEP PLUG
PERENNIAL PLANTS, WETLAND TYPE, 2" DIA. X 4" DEEP PLUG

This work shall be performed in accordance with applicable provisions of the Standard Specifications except as herein modified.

Article 254.01Description:

Delete the entire article and replace with the following:

"This work includes preparation of planting bed, materials, plants, delivery, installation, and maintenance of native perennial plugs as indicated on drawings and specified herein."

Article 254.02Materials:

Delete the following:

"(g) MulchArticle 1081.06(b)"

Article 1081.02Perennial Plants:

Delete item (b) and replace with the following:

"(b) Prairie Type, 2" DIA. X 4" Deep Plug, Wetland Type, 2" DIA. X 4" Deep Plug

- (a) Quality Assurance. All relevant materials and work shall comply with applicable sections of the following references unless waived in writing:
 - (1) American Association of Nurserymen, Inc. (AAN) Standard: American Standard for Nursery Stock (ANSI Z60.1-1986).
 - (2) Hortus Third, Cornell University, 1976.
 - (3) American Joint Committee on Horticultural Nomenclature "Standard Plant Names", second edition, 1942.
 - (4) ASTM: American Society for Testing Materials.
- (b) Procurement. Immediately following contract award, the installing contractor shall begin native landscape plant material procurement. During the procurement period, the Contractor shall locate sufficient quantities of specified materials and set up growing contracts, if necessary, to ensure that the quantities and quality of native landscape plant material will be available during the specified installation period. Contractor shall provide the Engineer with this information as soon as possible.
- (c) Herbaceous Plant Material. Provide quality, size, genus, species, and variety of herbaceous plants indicated, complying with applicable requirements in ANSI Z60.1, "American Standard for Nursery Stock". Flats or lots of plants shall be clearly labeled by variety, and the Contractor shall furnish the Engineer a shipping ticket or label documenting that the plants supplied are of the variety specified in the plans.
 - (1) Provide nursery propagated stock with its genetic origin from northeastern

Illinois (as defined by Swink and Wilhelm). Collected stock or nursery grown wild plants will not be permitted.

- (2) Plant material shall be free of disease, insects, eggs, larvae, and defects such as knots, sunscald, injuries, abrasions, or disfigurement.
- (3) Plant material shall be sound, healthy and vigorous of uniform growth typical of the species and variety, well formed, and free from irregularities with the minimum quality conforming to American Standard for Nursery Stock.
- (4) Plant material shall be plugs at a minimum grown in 2 ½ inch diameter containers with sidewall grooves, ribs, or slits.
- (5) Plant material furnished in containers shall have roots well established in the soil mass and shall exhibit root growth that holds soil together when pulled from the container. Containers shall be large enough to provide earth-root mass of adequate size to support the plant tops being grown. Plants over-established in the container, as evidenced by pot-bound root ends, will not be accepted.
- (6) Plant material shall be subject to final approval by the engineer at the project site prior to installation.
- (7) Refer to plans for quantity, type, and planting locations for the proposed species of plant material.
- (8) Substitutions must be approved in writing by the Engineer following proof of non-availability and proposal for use of equivalent material. For proof of non-availability, submit a list of sources queried.
- (9) Plants shall be supplied at the sizes specified. Plants of larger size may be used if acceptable to the Engineer.

(d) Perennial Plants, Prairie Type, K0013000 species list:

<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>
Echinacea purpurea	Purple Coneflower
Penstemon digitalis	Foxglove Beardtongue
Ratibidapinnata	Yellow Coneflower
Solidagorigida	Stiff Goldenrod
Tradescantiaohioensis	Spiderwort

(e) Perennial Plants, Wetland Type, K0013030 species list:

<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>
Iris virginicaShrevel	Blue Flag
MenthaarvensisVillosa	Wild Mint
Pontederiacordata	Pickereel Weed
Sagittarialatifolia	Common Arrowhead
Sparganiumeurycarpum	Common Bur Weed"

Article 254.03 Planting Time:

Delete entire Article and replace with the following:

- “(a) Submittals. Prior to beginning work, the Contractor shall submit the following information to the Engineer for review and approval:
- (1) Qualification Data. The work of this section shall be performed by a qualified contractor specializing in non-native species weed control, live plantings, and maintenance procedures for native species.
 - a. Contractor shall have a minimum of five years experience in planting and maintaining similar projects.
 - b. Contractor shall be licensed for the application of herbicides according to applicable law.
 - c. Contractor completing the work described in this section must submit documentation of prior experience and expertise in this type of work.
 - d. Contractor must submit a minimum of three references, including contact names and phone numbers, who can verify these qualifications.
 - e. Work described in this section may not begin until these qualifications have been approved.
 - (2) Product Data: For Each type of product indicated.
 - (3) Plant Supplier: Within two weeks following notification to proceed, submit for approval to the Engineer a written list indicating the following:
 - a. Name, Address, and phone number of plant source supplier(s) for each plant species.
 - b. Quantity of each species to be installed shall be submitted eight (8) weeks prior to delivery to project site.
 - (4) Planting Schedule. Schedule for work to be completed shall be submitted to the Engineer indicating anticipated installation dates for naturalized landscape plantings.
- (b) Installation Seasons and Conditions. Contractor shall prep and install native landscapes during the first available growing season. Consult the Engineer for a detailed construction schedule that indicates the timeframes during which all planting must be completed. Coordinate planting periods with maintenance periods to provide required maintenance from date of Substantial Completion. The following outlines the recommended installation timeframe provided the construction schedule is completed on a timely basis.
- (1) Herbaceous plant material installation. Sequence installation with completion of seeding and erosion control blanket installation where applicable. Herbaceous material installation shall occur in spring no later than June 15th.
 - (2) If special conditions exist which warrant installation outside these proposed planting timeframes, submit a written request to the Engineer describing conditions and stating the proposed variance. If approved, the installation contractor may be responsible for the supplemental watering at a frequency and duration for proper vegetation establishment and development.”

Article 254.04Transporting and Storing Plants.

Delete entire article and replace with the following:

“Contractor shall be responsible for the guarding and safekeeping of all plant material prior to installation.

- (a) Transport plant material in closed vehicles to protect from drying winds, heat, freezing or other exposure that may be harmful. Make arrangements to have plant material watered during shipment as necessary to avoid excessive stress. Plant material may be rejected if not properly shipped. Plant material shall not be shipped when temperatures are below 20 degrees Fahrenheit.
- (b) Labels. Shipment of plants shall be clearly identified with durable and legible, waterproof labels stating correct botanical plant name (genus and species) and size of plant securely attached to individual plants or to bundles of like variety and size.
- (c) Shipping shall be scheduled to minimize on site storage of plants. Deliver plants after preparations for planting have been completed and install immediately. If planting is delayed more than six hours after delivery, set plants in shade, protect from weather and mechanical damage, and keep roots moist.
 - a. Plants shall not be bent, stacked, or bound in a manner that damages or breaks stems, or destroys natural shape.
 - b. Handle planting stock by root ball.
 - c. Water root systems of all plants stored on-site with a fine-mist spray. Water as often as necessary to maintain root systems in a moist condition.
 - d. Do not remove container-grown stock from containers until planting time.
 - e. Before planting, sufficient water shall be added to potted plants to insure that the soil around the roots is not dry and crumbly when the plants are removed from the pots.
 - f. Any plants remaining at the end of the day shall be removed from the work site and properly stored by the Contractor.”

Article 254.05Layout of Planting.

Delete entire article and replace with the following:

- (a) “Project Site Conditions:
 - (1) Prior to beginning work, the Contractor shall examine and verify the acceptability of the project site and notify the Engineer in writing of unsatisfactory conditions. Do not proceed with any work until unsatisfactory conditions have been corrected or resolved in writing with the Engineer.
 - (2) Where planting occurs in close proximity to other site improvements, adequate protections shall be given to all features prior to commencement of work. Any items damaged during planting operations shall be promptly repaired to their original condition at no cost to the owner.
 - (3) Contractor shall have all underground utilities located by servicing agencies prior to beginning work. In the vicinity of utilities, hand excavate to minimize possibility of damage to underground utilities.

- (b) Pre-installation Conference. Conduct pre-installation conference at Project site attended by the Contractor, Planting Contractor, and Engineer prior to beginning any planting work.
- (c) Layout. The Contractor shall locate proposed drift locations using marking paint. Proposed layout shall then be reviewed and approved by the Engineer. The Contractor shall be responsible for obtaining approval from the Engineer for any relocation of proposed plantings because of utility conflicts, or other conflicts.”

Article 254.06Planting Procedures:

Delete entire article and replace with the following:

- (a) “Approval and Selection of Materials and Work. The selection of all materials and the execution of all operations required under the specifications and drawings are subject to the approval of the Engineer. The Engineer has the right to reject any and all materials and any and all work, which, in their opinion, does not meet the requirements of the contract documents at any stage of the operations. The Contractor shall remove rejected work and/or material from job site and replace promptly.
- (b) Coordination with Other Work.
 - (1) Proceed with and complete work as rapidly as portions of the project site become available, working within the seasonal limitations for each kind of work required.
 - (2) Herbaceous plant material shall be planted following seed and erosion blanket installation within those areas that are to receive erosion control blanket as indicated on plan documents, unless otherwise coordinated with and accepted by the Engineer.
- (c) Weather Limitations. Proceed with planting only when existing and forecasted weather conditions permit. Do not plant when weather conditions are unfavorable such as during high winds, or extremely wet or dry, or muddy conditions. When conditions detrimental to plant growth are encountered such as adverse drainage conditions or obstructions, notify the Engineer prior to planting.
- (d) Planting Bed Preparation.
 - (1) Un-graded Planting Bed Preparation. Area(s) unaltered or undisturbed by excavating, grading, or surface soil stripping operations, prepare surface soil as follows:
 - a. Remove existing herbaceous cover. Do not mix into surface soil.
 - b. Loosen surface soil to a depth of at least six (6) inches.
 - c. Remove sticks, roots, trash, and other extraneous matter larger than one (1) inch in any dimension.
 - d. Legally dispose of waste material, including grass, vegetation, and turf off property.
 - (2) Graded Planting Bed Preparation Areas. Areas altered or disturbed by excavating, grading, or surface soil stripping operations, prepare planting bed as follows:

- a. Limit planting bed preparation to areas to be planted. Do not begin naturalized landscape installation until finished grades have been approved and conditions are deemed acceptable by the Engineer.
 - b. Fine grade planting area to a smooth, uniform surface plane with loose, uniformly fine texture. Grade to within plus/minus one (1) inch of finish elevation. Lightly roll and rake area, remove ridges, and fill depressions to meet finish grades.
 - c. Remove from native landscape planting zones foreign objects larger than one (1) inch in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.
- (e) Herbaceous Planting.
- (1) Install herbaceous plant material within specified timeframe as provided in this section.
 - (2) Restore planting beds if eroded or otherwise disturbed after seeding, and remove any accumulated debris, trash, or other extraneous materials within the planting zones before planting.
 - (3) For those areas that shall receive enhancement plugging where erosion blanket is specified on the plan documents, plant after seeding and placement of erosion control blanket. Contractor will be required to carefully slit installed erosion control blanket for plug installation. Contractor shall ensure minimal disturbance to the erosion control blanket.
 - (4) Remove plugs from containers of cells, loosen roots and install in prepared soil.
 - (5) Dig holes large enough to allow spreading of roots, and backfill with planting soil. Plant to a depth to sufficiently cover all roots.
 - (6) Work soil around roots to eliminate air pockets and leave a slight saucer indentation around plants to hold water.
 - (7) Plants shall be moist at the time of planting. Water thoroughly after planting, taking care not to cover plant crowns with wet soil.
 - (8) Protect plants from hot sun and wind. Remove protection if plants show evidence of recovery from transplanting shock.
 - (9) Plants shall be spaced 18" on center with a minimum of 100 plugs per drift throughout the planting area. Drifts are to have an equal amount of plant species mixed randomly throughout planting areas."

Article 254.07Mulching

Delete entire article.

Article 254.08Period of Establishment:

Delete entire article and replace with the following:

"Prior to being accepted, the plants shall endure a period of establishment. This period shall begin in June and end in September of the same year. To qualify for inspection, plants shall

have been in place, in a live healthy condition, on or before June 1 of the year of inspection. To be acceptable, plants shall be in a live healthy condition, representative of their species, at the time of inspection in the month of September.

"When the planting work is performed by a subcontractor, this delay in inspection and acceptance of plants shall not delay acceptance of the entire project and final payment due if the contractor requires and receives from the subcontractor a third party performance bond naming the Department as obligee in the full amount of the planting quantities listed in the contract, multiplied by their contract unit prices. The bond shall be executed prior to acceptance and final payment of the non-planting items and shall be in full force and effect until final inspection and acceptance of all plants including replacements. Execution of the third party bond shall be the option of the prime contractor.

"The Department will assume the responsibility for all plant material found to be satisfactory at the time of inspection for successful completion of the period of establishment. Plants that do not meet the requirements for acceptance shall be replaced following the date of inspection and prior to November 30. Items specified for spring planting only shall be planted prior to the following April 30. Changes in the above dates will be allowed by the Engineer only if extreme weather conditions or other mitigating circumstances so dictate. When replacements are completed, the contractor shall weed and thoroughly clean up the entire job to the satisfaction of the Engineer. When cleanup operations have been completed, inspection will be made for replacement items only. All replacement items shall meet and be planted according to the original job specifications. Replacement plantings need not undergo a period of establishment to be accepted. However, replacement plants must be properly installed and in a live healthy condition at the time of inspection. Should replacements include both spring and fall items, the contractor may elect to plant all replacements in the spring, prior to May 15.

"The Contractor Shall remove, immediately from the site of the work, any dead plant material. During spring or fall planting, the Contractor will not be permitted to terminate the operation until all plant material is in a live, healthy condition. All plant material which dies within 15 days after being planted shall be replaced at that time and shall be considered as part of the original planting and be subject to the requirements of the period of establishment.

(a) Maintenance. Maintain all naturalized landscape areas during the Period of Establishment to develop a healthy stand of plantings and guard against defects including death, disease or infestation, and unsatisfactory growth, except for defects resulting from incidents that are beyond Contractor's control. During the Period of Establishment and at the time of final acceptance, the following performance standards shall be met:

- (1) Begin maintenance immediately after planting and continue until final acceptance and approval by the Engineer at the end of the Period of Establishment. Submit dated time sheets of maintenance operations to Engineer.
- (2) Do not let weedy volunteer species exceed 10% of total ground cover unless a different rate is agreed to in writing prior to contract award.
- (3) During the Period of Establishment, hand weed, cut and/or use appropriate herbicide (by licensed applicator) a sufficient number of times to keep weeds from setting seed and keep planted areas looking neat.
- (4) Hand pulling should include the removal of all aboveground and below ground stems, roots, and flower masses prior to the development of seeds. Care should be taken to disturb as little soil as possible during hand pulling to

avoid exposure of additional weed seed in the soil layer, and protect adjacent emerging seedlings.

- (b) Watering. Additional watering shall be performed at least once within every seven days for four weeks following installation. Beginning the fifth week following installation, watering cycles will be reduced to once every two weeks for the remainder of the Period of Establishment. Water shall be applied at the rate of 2 gallons/square yard (9 L/sq m). Should excess moisture prevail, the Engineer may delete any or all of the additional watering cycles. In severe weather, the Engineer may require additional watering.

Watering of plants in beds shall be applied in such a manner that all plant holes are uniformly saturated without allowing the water to flow beyond the periphery of the bed.

- (c) Substantial Completion. Contractor shall notify the Engineer in writing of the completion of native landscape planting.
- (1) Within ten (10) days after notification of completion of work, the Engineer will inspect the work and prepare a Notice of Substantial Completion, along with a list of items that require completion or correction.
 - (2) Issuance of the "Notice of Substantial Completion" shall constitute the start of the Period of Establishment for any portion accepted.
 - (3) Periodic inspections will be made from time to time by the engineer to review the quality and progress of the work. Work found to be unacceptable must be corrected within fifteen (15) calendar days.
- (d) Final Acceptance Inspection. The final inspection of all native landscape planting will be made by the Engineer. Before final acceptance shall be made, the terms of the maintenance performance requirements shall be met and all plantings are viable and vigorous, free of insects and diseases, firmly rooted and reflect industry standards of appearance. If the maintenance performance requirements are met, the work will be accepted. If not accepted and the work is deemed by the Engineer to be an installation failure, the contractor shall replace plantings and restore the planting zones to the original specified condition at no additional cost."

Article 254.09Method of Measurement:

Delete entire article and replace with the following:

"This work will be measured for final payment, in place, in units of 100 perennial plants of the type and size specified, after the Period of Establishment."

Article 254.10Basis of Payment:

Delete entire article and replace with the following:

"This work will be paid for at the contract unit price per unit for PERENNIAL PLANTS, PRAIRIE TYPE, 2" DIA. X 4" DEEP PLUG, and PERENNIAL PLANTS, WETLAND TYPE, 2" DIA. X 4" DEEP PLUG, of the type and size specified. Payment will be made according to the following schedule:

- (a) Initial payment. Upon planting, 75 percent of the pay item(s) will be paid.

- (b) Final Payment. Upon inspection and acceptance of the plant material, or upon execution of a third party bond, the remaining 25 percent of the pay item(s) will be paid.

Create the following article at the end of the section:

Article 254.11References:

- (a) American Joint Committee on Horticultural Nomenclature, "Standardized Plant Names," second edition.
(b) U.S. Dept. of Agriculture, AMS Seed Act, current edition.
(c) ANSI Z60.1 Nursery Stock (1990)

Swink, F. and G. Wilhelm. 1994. Plants of the Chicago Region. 4th ed. Indiana Academy of Science. Indianapolis, Indiana.

STABILIZED CONSTRUCTION ENTRANCE

Description:This work shall be conducted in accordance with the applicable sections Standard Specifications and shall consist of furnishing, installing, maintaining and removing a stabilized pad of aggregate capped with 3" of HMA binder and underlain with filter fabric as shown on the plans or directed by the Engineer.

Materials:Materials shall conform to the following:

Aggregate size: IDOT Coarse Aggregate Graduation: CA-3 per Section 1004.

Filter Fabric shall consist of synthetic polymers composed of at least 85 percent by weight polypropylene, polyesters, polyamides, polyethylene, polyolefins, or polyvinylidene-chlorides. The geotextile shall be free of any chemical treatment or coating that significantly reduces its porosity. Fibers shall contain stabilizers and/or inhibitors to enhance resistance to ultraviolet lights.

Construction Requirements:The course aggregate shall be a thickness of 6 inches or more. The stone entrance should not be filled until the area has been inspected and approved by the Engineer.

The rock shall be dumped and spread into place in approximately horizontal layers not more than 3 feet in thickness. It shall be placed in a manner to produce a reasonable homogeneous stable fill that contains no segregated pockets or larger or small fragments or large unfilled space caused by bridging of larger fragments. No compaction will be required beyond that resulting from the placing and spreading operations.

The minimum width and length shall be 25 and 100 feet, respectively.

All surface water flowing or diverted toward the construction entrance shall be piped across the entrance. Any pipe used for this will be considered incidental to the stabilized construction entrance.

Maintenance of this pay item may include cleaning, reshaping/grading, as well as additional aggregate at the direction of the engineer. Maintenance shall be included in the cost of this pay item. The entrance shall remain in place and be maintained until the disturbed area is stabilized. Any sediment spilled onto public right-of-ways must be removed immediately.

Method of Measurement:The work shall be measured for payment for at the contract unit price square yard for STABILIZED CONSTRUCTION ENTRANCE.

Basis of Payment:The work shall be paid for at the contract unit price square yard for STABILIZED CONSTRUCTION ENTRANCE, which price shall be payment in full for all material, labor and any other items required to complete the work.

AGGREGATE SURFACE COURSE FOR TEMPORARY ACCESS

Effective: April 1, 2001

Revised: January 2, 2007

Revise Article 402.10 of the Standard Specifications to read:

"402.10 For Temporary Access. The contractor shall construct and maintain aggregate surface course for temporary access to private entrances, commercial entrances and roads according to Article 402.07 and as directed by the Engineer.

The aggregate surface course shall be constructed to the dimensions and grades specified below, except as modified by the plans or as directed by the Engineer.

- (a) Private Entrance. The minimum width shall be 12 ft (3.6 m). The minimum compacted thickness shall be 6 in. (150 mm). The maximum grade shall be eight percent, except as required to match the existing grade.
- (b) Commercial Entrance. The minimum width shall be 24 ft (7.2 m). The minimum compacted thickness shall be 9 in. (230 mm). The maximum grade shall be six percent, except as required to match the existing grade.
- (c) Road. The minimum width shall be 24 ft (7.2 m). The minimum compacted thickness shall be 9 in. (230 mm). The grade and elevation shall be the same as the removed pavement, except as required to meet the grade of any new pavement constructed.

Maintaining the temporary access shall include relocating and/or regrading the aggregate surface course for any operation that may disturb or remove the temporary access. The same type and gradation of material used to construct the temporary access shall be used to maintain it.

When use of the temporary access is discontinued, the aggregate shall be removed and utilized in the permanent construction or disposed of according to Article 202.03."

Add the following to Article 402.12 of the Standard Specifications:

"Aggregate surface course for temporary access will be measured for payment as each for every private entrance, commercial entrance or road constructed for the purpose of temporary

access. If a residential drive, commercial entrance, or road is to be constructed under multiple stages, the aggregate needed to construct the second or subsequent stages will not be measured for payment but shall be included in the cost per each of the type specified.”

Revise the second paragraph of Article 402.13 of the Standard Specifications to read:

“Aggregate surface course for temporary access will be paid for at the contract unit price per each for TEMPORARY ACCESS (PRIVATE ENTRANCE), TEMPORARY ACCESS (COMMERCIAL ENTRANCE) or TEMPORARY ACCESS (ROAD).

Partial payment of the each amount bid for temporary access, of the type specified, will be paid according to the following schedule:

- (a) Upon construction of the temporary access, sixty percent of the contract unit price per each, of the type constructed, will be paid.
- (b) Subject to the approval of the Engineer for the adequate maintenance and removal of the temporary access, the remaining forty percent of the pay item will be paid upon the permanent removal of the temporary access.”

TURBIDITY CURTAIN

Description: This work shall include all labor, materials, and equipment necessary for the installation and removal and disposal of the TURBIDITY CURTAIN.

Cleaning, maintenance and removal of the turbidity curtain will be completed as required. The turbidity curtain will be removed after installation of causeway and temporary bridges, and re-installed when those items are removed.

The development and maintenance of the turbidity curtain and dewatering basin shall be coordinated with the IDOT Erosion and Sediment Control representative on site.

The curtain shall include the following characteristics, such as Style 250EX, a nonwoven polypropylene fabric supplied by Thrace-LINQ, Inc., or approved equal:

PROPERTY	TEST PROCEDURE	METRIC		ENGLISH	
		MARV		MARV	
Grab Tensile Strength	ASTM D-4632	1202	N	270	lbs
Grab Elongation	ASTM D-4632	50	%	50	%
Trapezoid Tear	ASTM D-4533	445	N	100	lbs
Puncture	ASTM D-4833	690	N	155	lbs
Puncture (CBR)	ASTM D-6241	3226	N	725	lbs
Mullen Burst	ASTM D-3786	3171	kPa	460	psi
Permittivity	ASTM D-4491	1.2	sec ⁻¹	1.2	sec ⁻¹

A.O.S.	ASTM D-4751	0.15	mm	100	U.S. Sieve
UV Stavility (500 hrs)	ASTM D-4355	70	%	70	%
Water Flow Rate	ASTM D-4491	3463	Lpm/m ²	85	gpm/ft ²

MARV: Minimum Average Roll Value

Apparent Opening Size (AOS) properties are Maximum Average Roll Values.

Fluctuation in river levels, up to the 100-year high water level of 693.49, shall be accounted for in the fabrication and installation of the turbidity curtain.

Method of Measurement: This work is measured for payment in square yards of the initial installation in place. The area of turbidity curtain between the surface floats and bottom anchors shall be measured for payment. Removal, one re-installation and a final removal will not be measured separately.

Basis of Payment: This work will be paid for at the contract unit price per SQAURE YARD for TURBIDITY CURTAIN. This shall include initial installation with the temporary causeway and temporary bridges, removal after causeway and bridges are installed, re-installation when causeway and bridges are removed, and final removal with offsite disposal.

REMOVE, SALVAGE AND REPLACE FRAME AND GRATE

Description: This work shall consist of removal of existing frames and grates and replacement with the type of frame and lid specified in the plans.

Materials: All materials shall meet the applicable requirements of Section 604.

General Requirements: Frames and grates shall be removed from existing structures and replaced, including adjustment to final grade. This shall be completed in accordance with Section 604. The existing frame and grate shall be delivered to the City of St. Charles Public Works Department.

Method of Measurement: Frames and grates to be replaced will be measured per each.

Basis of Payment: REMOVE, SALVAGE AND REPLACE FRAME AND GRATE, measured as specified, will be paid at the contract unit price per each which payment shall constitute full compensation for excavation as required, furnishing and placing the frame and grate, and adjustment to final plan grades.

TEMPORARY AGGREGATE BERM – COURSE AGGREGATE **TEMPORARY AGGREGATE BERM – RIPRAP**

Description: This work shall consist of excavation, placing a filter fabric and a protective coating of dumped or hand-laid stone riprap and coarse aggregate for Culvert Inlet Protection - Stone and Rock Check Dams as shown on the Plans and the removal of the coarse aggregate, riprap, and filter fabric upon the completion of the need for these temporary facilities.

Materials: All materials shall meet the requirements of the following Articles of Section 1000

Materials:

Riprap 1005.01

Coarse Aggregate Filter Fabric 1004.01

Filter Fabric 1080.03

General Requirements: The Temporary Aggregate Berm shall be constructed to the width, length and depth shown on the Plans. Filter Fabric shall be placed under the Riprap and Coarse Aggregate. The Riprap and Coarse Aggregate shall be placed to the lines, grades, and details as shown on the Plans.

Once the Engineer determines the berm is no longer necessary the Contractor shall remove the materials.

Method of Measurement: Temporary Aggregate Berm-Riprap and Temporary Aggregate Berm-Course Aggregate will be measured for payment in tons; payment will not be made for riprap or coarse aggregate placed outside of the plan dimensions. Payment will only be made for the initial placement of the Temporary Aggregate Berm-Riprap or Temporary Aggregate Berm-Course Aggregate. The filter fabric will not be measured separately for payment.

Basis of Payment: TEMPORARY AGGREGATE BERM - RIPRAP and TEMPORARY AGGREGATE BERM – COURSE AGGREGATE measured as specified will be paid at the contract unit price per ton which payment shall constitute full compensation for excavation as required, furnishing and placing riprap or course aggregate and final removal of riprap or course aggregate and the furnishing, placing and removal of the filter fabric.

PERIMETER EROSION BARRIER, ROLLED EXCELSIOR

Description: This Work shall conform to Article 280.04 of the Standard Specifications, except as modified herein or on the plans.

Method of Measurement: This work shall be measured for payment in place per foot.

Basis of Payment: The work shall be paid at the contract price per foot for PERIMETER EROSION BARRIER, ROLLED EXCELSIOR. The price shall include all necessary labor, material and equipment needed to install the work described herein and as specified on the plans.

TREE REMOVAL, ACRES

Add the following paragraph to Article 201.04 of the Standard Specifications: Tree removal shall be conducted by a logging contractor with a professional forester on staff and supervising the work in the field. The Contractor shall submit the following information to the Engineer for review prior to beginning work:

1. five (5) references including contact names and phone numbers for tree removal projects of similar size that they have completed.
2. resumes showing qualifications of professional forester and key staff conducting the work.
3. herbicide applicators license.

The Contractor shall notify the Engineer a minimum of two weeks prior to beginning tree removal operations so that a pre-construction meeting can be coordinated at the site. The pre-construction meeting shall be attended by the Engineer, the Contractor, and representatives of the Kane County Forest Preserve. Pre-construction meeting attendees shall walk the site to:

1. confirm areas of removal.
2. evaluate the quality and estimate the quantity of saw timber to be salvaged.
3. review harvesting methods and equipment.
4. establish landing locations.

The Contractor shall provide a list of all trees over 6" that are to be removed for approval for documentation by the Engineer. The list shall include, at a minimum: area removed from, species of tree, diameter of tree, and health status of tree. This information shall be submitted to the Engineer for approval payment for any areas cleared.

The Contractor shall remove all trees and brush within the limits of work indicated on the plans. Care should be taken to minimize damage to trees indicated to remain. Broken limbs shall be removed from damaged trees indicated to remain during tree removal operations. Stumps shall be removed in accordance with the Standard Specifications.

The Contractor will cut and salvage logs from desirable trees species larger than 9" d.b.h. Desirable tree species include walnut, cherry, ash, basswood, oak, hickory and maple. Logs shall be processed and cut into 10'-16' lengths and neatly stockpiled on site at landing locations designated by the Engineer. The Engineer will then coordinate with the Forest Preserve to take possession of the logs. Ash trees shall be harvested and/or disposed of in accordance with Illinois Department of Agriculture requirements to minimize the potential spread of the Emerald Ash Borer beetle. All trees not suitable for harvesting, and other brush and slash residual larger than 1" diameter shall be removed and disposed of in accordance with the Standard Specifications. All ruts and damage caused by removal operations shall be restored and reseed if necessary

LIMESTONE SCREENING SURFACE 3" (NEW PATHS)

Description: Provide all labor, materials, and equipment to construct a limestone screening trail as indicated on the drawings, including incidentals related to that work and other work specified elsewhere in the Contract Documents:

Related Sections: Coordinate related work specified in other parts of the Project Manual, including but not limited to Aggregate Base Course.

References: "Standard Specifications for Road and Bridge Construction"- Latest edition- Illinois Department of Transportation

Quality Assurance:

1. The Contractor is responsible for verifying the quality of the work and shall perform compaction and density tests on request of the Engineer to check compliance with these specifications. A copy of the test reports shall be furnished to the Engineer.
2. The Engineer may require that an independent testing laboratory test imported materials at any time. If the material is found to be non-compliant with the Contract, the Contractor shall

bear the cost of testing, removal of all non-compliant materials from the Project Site, and replacement of the materials with materials meeting the requirements of the Contract. If the materials tested are found to be compliant with the requirements of the Contract, the Owner will reimburse the Contractor for costs incurred by testing plus mark-ups as allowed for elsewhere in the Contract.

3. It is the responsibility of the Contractor to verify the accuracy of all survey information prior to commencing excavations or filling operations. Commencement of these operations constitutes acceptance of the survey information as appropriate to meet the intent of the Contract.

Submittals: The Engineer shall approve in principle all products used in the execution of this section prior to their importation to the Project Site. Submit a particle gradation analysis in graph and table form for each product specified. Approval of the Engineer of an analysis does not constitute approval of the actual product, which may be subject to additional testing at any time as noted above.

Materials: Prior to the importation of any materials, the Contractor shall provide the Engineer with a certified test lab report of the sieve analysis of the product. The Engineer shall be the final determining factor in establishing compliance with sieve requirements. No material shall be brought onto the job site until the initial sieve analysis has been approved in writing.

During the course of importation of materials, the Contractor shall be responsible for continually checking the materials to insure that they continue to meet the Specifications.

1. Limestone Screening Surface Course. Limestone trail top course shall meet the gradation requirements of FA-21 as follows:

<u>Sieve Size</u>	<u>Percent Passing</u>
3/8" square sieve	100
No. 4 sieve	95 - 100
No. 8 sieve	75 - 80
No. 16 sieve	55 - 65
No. 30 sieve	40 - 50
No. 50 sieve	25 - 35
No. 100 sieve	20 - 25
No. 200 sieve	5 - 15

Earthwork:

1. Earthwork shall consist of furnishing all labor, materials, tools and equipment necessary to grade the trail in accordance with the drawings. This will at a minimum include rough and finish grading to approved grades, excavation of organic or unstable soils; excavation, stockpiling and redistribution of topsoil; placing and grading supplemental topsoil; hauling away excess material, grading and shaping ditches, and all other grading and excavation operations unless otherwise called for in the plans and specifications.

2. Subgrade shall be prepared in accordance with Section 301 of the Standard Specifications and shall be graded to accomplish the proposed lines and levels indicated on the plans.

Grading:

1. Uniformly grade areas within limits of grading under this section, including adjacent transition areas. Smooth finished surface within specified areas. Compact with uniform levels or slopes between points where elevations are shown, or between such points and existing grades. Finish surfaces free from irregular surface changes.
2. Material Storage: Stockpile satisfactory excavated materials where directed, until required for backfill or fill. Place, grade and shape stockpiles for proper drainage.
3. Locate and retain soil materials away from edge of excavations and drip lines of trees to remain.
4. Dispose of excess soil material and waste materials as herein specified.

Compaction: Subbase shall be compacted in accordance with Section 311 of the Standard Specifications. Control soil compaction during construction providing minimum percentage of density specified for area classification. Do not allow equipment traffic to overly compact areas beyond specified percentages. Remediate over compaction as directed by the Engineer including ripping, regrading and re-compaction or over-excavation and in-kind replacement per plan.

1. Percentage of Maximum Density Requirements: Compact soil to not less than the following percentages for maximum density for soils which exhibit a well-defined moisture density relationship (cohesive soils) determined in accordance with ASTM D1557; and not less than the following percentages of relative density; determined in accordance with ASTM 2049, for soils which will not exhibit a well defined moisture density relationship (cohesionless soils).
 - a. Limestone Screening Surface Course - 95%
2. Moisture Control:
 - a. Where sub-grade or lift of soil material must be moisture conditioned before compaction, uniformly apply water to surface of subgrade, or layer of soil material, to prevent free water appearing on surface during or subsequent to compaction operations.
 - b. Before compaction, moisten or aerate each layer as necessary to provide optimum content. Compact each layer to required percentages of maximum dry density or relative dry density for each area classification.
 - c. Do not perform compaction operations on excessively wetted soils.

Limestone Screening Surface Provide a 3" compacted lift of specified Crushed Limestone Screening Top Course to the elevations either described or implied by the Contract Drawings or as required by the Engineer.

Shape the trail or pathway to the desired grades. Slightly crown or cross-slope the surface so as to provide natural runoff and drainage.

Method of Measurement: The work under this item will be measured for payment in Square Yards.

Basis of Payment: Payment for this work will be paid for on a square yard basis for LIMESTONE SCREENING SURFACE 3" (NEW PATHS) and will include excavation, grading and all work necessary for establishing grades and alignment as indicated on the drawings. Aggregate Base Course, Type B will be paid for separately.

STEEL RAILING (SPECIAL)

Work under this item must be performed in accordance with the requirements of Section 509 of the Standard Specifications except as modified in the contract plan sheets.

Description: This Work consists of furnishing, erecting and painting metal railings and anchorage assemblies and all required accessories in the locations as shown on the plans.

General Requirements: All work shall be according to the applicable requirements of Section 509 of the Standard Specifications and the requirements detailed in the plans.

Paint Requirements. The steel to be painted shall receive one primer coat, one finish coat and a second clear finish coat with the dry film thickness (DFT) of each coat measured according to SSPC-PA2 and conforming to the following:

- prime coat having a DFT such as the following or an approved equal:
 - Carboguard 888, polyamide epoxyprimer (3 - 5 mils) – Carboline Company (Herman Rodriguez 847-289-3767)
 - ZRU Primer, moisture cured zinc rich urethane (2 - 5 mils) – Freda Inc. (Richard Milheim 800-348-4621)
 - KL3200, Kolor-PoxyRed, polyamide epoxyprimer (3 - 5 mils) – PPG/Keeler & Long (WayneBell Jr. 724-272-5040)
 - Macropoxy 646, polyamide epoxyprimer, (4 - 6 mils) – Sherwin-Williams (Vince Thomas 312-371-0709)
- semi gloss finish coat and having a DFT such as the following or an approved equal:
 - Carbothane 133HB (satin), aliphatic acrylic-polyester polyurethane (3 - 5 mils) – Carboline
 - I2 Topcoat (semi gloss), aliphatic polyurethane (2.5 - 5 mils) – Freda Inc.
 - KLN2-Series (semi gloss), neothane hi-solids urethane (2.5 - 5 mils) – PPG/Keeler & Long
 - Acrolon 218HS (semi gloss), polyester mod acrylic polyurethane (3 - 5 mils) – Sherwin-Williams
- clear, semi gloss second finish coat having a DFT such as the following or an approved equal:
 - Carbothane Clear Coat (satin), aliphatic acrylic polyurethane(1 - 2 mils) – Carboline
 - I2 Topcoat (semi gloss), aliphatic polyurethane(1.5 - 5 mils) – Freda Inc
 - KLN25227 (semi gloss), neothane hi-solids urethane (2.5 - 5 mils) – PPG/Keeler & Long
 - Diamond-Clad Clear (SGB65T115 Series), water based acrylic polyurethane(1 - 2 mils) – Sherwin-Williams

As an alternative to the paint system outlined above, the steel to be painted shall receive one coat of a polyamide epoxy primer and one finish coat with the dry film thickness (DFT) of each coat measured according to SSPC-PA2 and conforming to the following:

- prime coathaving a DFT such as the following or an approved equal:
 - Carboguard 888, polyamide epoxyprimer (3 - 5 mils) – Carboline Company
 - Corafon ADS High Build Epoxy, polyamide epoxy(2.5 - 6 mils) – PPG/Keeler & Long
 - Macropoxy 646, polyamide epoxyprimer (4 - 6 mils) – Sherwin-Williams
- finish coat having a DFT such as the following or an approved equal:
 - Carboxane 2000 (gloss), modified siloxane hybrid (3 - 7 mils) – Carboline
 - Corafon ADS (semi gloss), fluoropolymer (1.5 - 3 mils) – PPG/Keeler & Long
 - Polysiloxane XLE (gloss), epoxysiloxane (3 - 7 mils) – Sherwin-Williams

The color of the finish coat for the railing shall match color SW7504 "Keystone Gray" with RGB Value R-159, G-147, B-135. Contractor shall submit a color sample (12"x12" minimum painted on carbon steel) for approval prior to ordering paint. Cost of color sample shall be included with this item.

All cleaning, preparation for painting and painting shall be done in the same shop to ensure single source responsibility of the entire coating system. Also, all paint materials shall be from a single source to ensure compatibility and samples of components submitted for approval by the Engineer, before use.

Cleaning and field painting of the top coat of the existing steel railing at the Fox River Trail Bridge (SN 045-6019) shall be completed in this contract.

Method of Measurement: The work under this item will be measured for payment in feet. The section of railing on the Fox River Trail bridge (SN 045-6019) shall not be measured for payment.

Basis of Payment: This item which included furnishing, erecting and painting metal railings will be paid for at the contract price per foot for STEEL RAILING (SPECIAL), which payment will be full compensation for the work described herein. Field painting of the existing railing on the Fox River Trail Bridge shall not be paid for separately but shall be included in the cost for STEEL RAILING (SPECIAL).

DRAINAGE SYSTEM

Description. This work shall consist of furnishing and installing a bridge drainage system as shown on the plans, including all piping, fittings, support brackets, inserts, bolts, splash blocks, and backfill when specified.

Material. FRP pipe and fittings shall be reinforced fiberglass according to ASTM D 2996 RTRP with a 30,000 psi (207 MPa) minimum short-time rupture strength hoop tensile stress. The reinforced fiberglass shall also have an apparent stiffness factor at 5 percent deflection exceeding 200 cu in.-lbf/sq. in. (22.6 cu mm-kPa) and a minimum wall thickness of 0.10 in. (2.54 mm). The fiberglass pipe and fittings furnished shall be pigmented throughout, or have a resin-rich pigmented exterior coat, specifically designed for overcoating fiberglass, as recommended by the manufacturer. The color shall be as specified by the Engineer as coordinated with City of St. Charles. The resin in either case shall have an ultraviolet absorber designed to prevent ultraviolet degradation. The supplier shall certify the material supplied meets or exceeds these requirements.

Ductile iron pipe and fittings shall be in accordance with ASTM A746. Buried sections of pipe shall be encased in a high density polyethylene encasement with material specifications and installation method in accordance with ASTM A674.

All pipe supports and associated hardware shall be hot dip galvanized according to AASHTO M 232 (M 232M).

Design. The drainage system shall be designed as an open system with allowances for the differential expansion and contraction expected between the superstructure and the substructure to which the drainage system is attached.

Installation. FRP cleanouts shall feature a minimum nominal 6 in. (150 mm) female threaded fiberglass outlet filled with a male threaded PVC plug. Ductile iron cleanouts shall be fitted with restrained plugs that may be easily removed and replaced to facilitate flushing of the system.

Adhesive bonded joints for pipes and fittings will be permitted for runs of FRP pipe. Ductile iron pipes and fittings shall be joined with rubber gasket push-on joints.

Runs of pipe shall be supported at a spacing not exceeding those recommended by the manufacturer of the pipe. Supports that have point contact or narrow supporting areas shall be avoided. Standard slings, clamps, clevis hangers and shoe supports designed for use with steel pipe may be used. The minimum strap width for FRP pipe hangers shall be 2 in. Straps shall have 120 degrees of contact with the pipe. FRP pipes supported on less than 120 degrees of contact shall have a split fiberglass pipe protective sleeve bonded in place with adhesive.

All pipe, fittings, and expansion joints shall be handled and installed according to guidelines and procedures recommended by the manufacturer or supplier of the material.

Basis of Payment. This work will be paid for at the contract lump sum price for DRAINAGE SYSTEM.

DRILL EXISTING MANHOLE OR HANDHOLE

Description: This work shall consist of drilling a hole in an existing concrete manhole or handhole and for installing a new conduit through the drilled hole.

General: The size of the hole shall be as close as possible to the size of the conduit. A conduit of the size required shall be installed in the drilled hole. A bushing shall be provided at the end of the conduit. The space between the conduit and manhole or handhole wall shall be sealed with a waterproof caulk.

Method of Measurement: The work under this item will be measured on a per each basis.

Basis of Payment: This work will be paid for at the contract unit price per each for DRILL EXISTING MANHOLE OR HANDHOLE.

DUST CONTROL WATERING

This work shall be performed in accordance with Section 107 of the Standard Specifications with the following alterations.

107.36 Dust Control. Delete paragraph 5 and add the following: Dust shall be controlled by the uniform application of sprinkled water and shall be applied only when directed and in a manner approved by the Engineer. All equipment used for this work shall meet with the Engineer's approval and shall be equipped with adequate measuring devices for determining the exact amount of water discharged. All water used shall be properly documented by ticket or other approved means.

Method of Measurement. This work will be measured in units of gallons of water applied. One unit is equivalent to 1,000 gallons of water applied. The Contractor's attention is called to Article 107.18 of the Standard Specifications.

Basis of Payment. This work will be paid for at the contract unit price per unit for DUST CONTROL WATERING, which price shall include all labor, water and equipment for controlling dust as herein specified.

Basis of Payment: This work will be paid for at the contract unit price per unit as DUST CONTROL WATERING, which price shall be payment in full for furnishing all labor, water and equipment for controlling dust as specified.

FENCE REMOVAL

Description: This work shall consist of removal and disposal, off-site, of all fencing and foundations and other miscellaneous hardware not to be incorporated into the proposed work. Except as modified herein, the work shall conform to the applicable portions of Sections 201 and 664 of the Standard Specifications. Removal shall be performed within the footprint of the project improvements, and include but not limited to removal of the fence, posts, foundations, gates, bracing, tension wires and other hardware associated with the fence to be removed.

General Requirements:

The Contractor shall remove and dispose of materials off-site. Disposal shall be made at a legal disposal site. The Contractor shall provide written authorization to the Engineer for the use of that location.

Construction Requirements:

Remove and dispose of existing posts, fabric and appurtenances. Carefully cut the portion of the fence to be removed from any portion of the fence to remain. If a portion of the fence is to remain, install stretcher bars and terminations at new end post. This work shall meet the applicable requirement of Section 664 of the Standard Specifications.

Method of Measurement and Basis of Payment:

Fence removal will be measured in-place and will be paid for at the contract unit price per FOOT for FENCE REMOVAL. Payment shall include all labor, materials, equipment and tools necessary to complete the work as herein specified, at locations shown on the plans and as directed by the engineer

REMOVE AND RELOCATE SIGN (SPECIAL)

Description: This work shall consist of removal and replacement of existing street signs where specified in the plans.

Materials: All materials shall meet the applicable requirements of the City of St. Charles.

General Requirements: The sign post and foundation shall be removed and replaced, including adjustment to final grade. Any damage to the existing materials, including the foundation, post and signs, shall be repaired or reconstructed to the satisfaction of the engineer.

Method of Measurement: Street signs to be removed and replaced will be measured per each.

Basis of Payment: REMOVE AND RELOCATE SIGN (SPECIAL), measured as specified, will be paid at the contract unit price per each which payment shall constitute full compensation for excavation as required, furnishing a new foundation as necessary, repair for any damage incurred during the contractors work, and replacing the sign with adjustment to final location and grade to the satisfaction of the engineer.

TEMPORARY INFORMATION SIGNS

Description: This work shall consist of fabricating, installing, maintaining and removing temporary informational signing as detailed in the plans and as directed by the Engineer.

Special attention is called to Articles 105.05, 107.09 and to Section 701 of the "Standard Specifications", and to Highway Standards, Details, Recurring Special Provisions and Special Provisions contained herein, relating to traffic control.

The contractor shall contact the Engineer at least 72 hours in advance of installing detour signs. Detour signs shall be installed progressing from the end of the detour route to the beginning.

Method of Measurement: This work will be measured the contract unit price per square foot of TEMPORARY INFORMATION SIGNING.

Basis of Payment: This work will be paid for at the contract unit price per square foot of TEMPORARY INFORMATION SIGNING. The payment will be in full for all labor, materials, transportation and incidentals required to furnish, install, maintain, replace, relocate and remove all traffic control devices related to TEMPORARY INFORMATION SIGNS indicated in the plans and special provisions.

ANTI-GRAFFITI COATING ANTI-GRAFFITI PROTECTION SYSTEM

Description: This work shall consist of the furnishing and applying of an anti-graffiti coating to concrete surfaces as noted on the plans (Anti-Graffiti Coating). This work shall also consist of the furnishing and applying of an anti-graffiti coating to concrete surfaces with a form liner treatment that are color stained (Anti-Graffiti Protection System).

General Requirements. The anti-graffiti protection system shall consist of a permanent, color stable, UV, stain, chemical and abrasion resistant coating. The removal of graffiti from the protected surfaces shall be accomplished by applying a separate removal agent as recommended by the manufacturer of the permanent coating. The removal agent shall have the capability of completely removing all types of paints and stains. After graffiti removal there shall be no damage to the anti-graffiti coating or the surface to which it is applied. Additionally there shall be no evidence of ghosting, shadowing, or staining of the protected surface.

Qualifications. The anti-graffiti protection system shall be a product that has been commercially available for a period of at least five (5) years. The Contractor shall apply the material to a test following the manufacturer's recommendation. The location of the test patch shall be on at a location on the abutment of the Fox River Trail bridge abutment at the direction of the Engineer. After the manufacturer's recommended curing period, the Engineer will apply various types of graffiti materials to the coating. After three (3) days the removal agent shall be used to remove the graffiti. If after graffiti removal the anti-graffiti coating is clean and undamaged, with no evidence of ghosting, shadowing or staining, then the anti-graffiti coating is approved for use.

Surface Preparation. Prior to application of the anti-graffiti coating, all designated surfaces shall be cleaned of all loose debris, previous coatings and all foreign matter by a method as recommended by the coating manufacturer and approved by the Engineer. All surfaces shall be thoroughly clean, dry and free of dust that might prevent penetration of the coating. New concrete should be thoroughly cured before application of the coating. Concrete surfaces shall be properly sealed according to the manufacturer's recommendations so the application of the system does not produce any noticeable long-term change in the color of the surfaces being treated. A technical representative of the manufacturer shall be present to approve surface preparation and application of the anti-graffiti protection system.

Weather Conditions. Coatings shall not be applied in the rain, snow, fog or mist, nor shall they be applied if these conditions are expected within twelve (12) hours of application. Coatings shall not be applied when surface or air temperatures are less than 40° F nor greater than 100° F, or is expected to exceed these temperatures within twelve (12) hours of application.

Application. The manufacturer's product data sheets and application guides shall be submitted to the Engineer prior to coating application. All information contained in the datasheets and application guides shall be strictly followed. All coatings shall be applied in the presence of the Engineer. The wet film thickness will be measured by the Engineer and shall be according to the manufacturer's recommendation. Application of the clear protective coating shall take place after the application and curing of the FORM LINER TEXTURED SURFACE (SPECIAL) item as appropriate for the surface to be treated.

In a contrasting color of the same anti-graffiti system, the name of the system used and the date of application shall be stenciled in letters not to exceed 2 inches high. The location of the stencil shall be near one end of the work at the bottom of the surface to be protected. For projects greater than 3,000 sq. ft. near the bottom at the locations designated by the Engineer.

Cleaning Agent. The Contractor shall supply the Engineer with an initial quantity of the removal agent and written instructions for its use, as recommended by the manufacturer for graffiti removal. The amount shall be furnished at the rate of one (1) gallon per 81 sq. yd of treated surface.

Pre-Approved Suppliers:

The product for ANTI-GRAFFITI COATING shall be as outlined below or an approved equal meeting all of the requirements of the product outlined below.

- MonochemPermashield Base Item 6100 (One Coat)
- MonochemPermashield Premium Item 5600 (Two Coats)
- Monochem Citrus Clean Super Item 9800 (Cleaning Agent)

The product for ANTI-GRAFFITI PROTECTION SYSTEM shall be as outlined below or an approved equal meeting all of the requirements of the product outlined below.

- Sherwin Williams Anti-Graffiti Coating Clear B97C00150

Method of Measurement. This work will be measured in place per square feet of surface area upon which the anti-graffiti protection system has been applied and accepted by the Engineer.

Basis of Payment. This work will be paid for at the contract unit price per square feet for ANTI-GRAFFITI COATING or ANTI-GRAFFITI PROTECTION SYSTEM which price shall be payment in full for the cleaning of designated surfaces, the application of the anti-graffiti coating, supplying the manufacturer's technical representative and supplying the initial quantity of cleaning agent and the test patch.

TEMPORARY CAUSEWAY

Description: This work includes the construction, maintenance, and removal of a temporary causeway in the Fox River during the construction of the Red Gate Road Bridge, the Multi-Use Path Bridge, in accordance with the plans and as directed by the Engineer.

The maximum foot print of a temporary causeway and any temporary work structure in the river shall be limited to 0.25 Acre per the ACOE Regional Permit.

Materials: Granular Embankment shall be in accordance with Article 206.02 of the IDOT Standard Specifications.

Class RR5 and RR3 stone with 0% passing the 3 inch sieve shall be used in accordance with Article 1005.01(c) of the IDOT Standard Specifications. Stone shall be Quality A as per 1005.01 (a).

Geotextile Fabric shall be used in accordance with Article 1080.02 of the IDOT Standard Specifications.

Construction: In accordance with Section 205 of the IDOT Standard Specifications and as follows:

The contractor shall locate the causeway as indicated on the contract plans and place geotextile fabric between the stone and the streambed or ground line. The contractor shall construct causeway embankments with RR5 stone and a nominal 6" deep RR3 riding surface to the elevation indicated. The contractor shall choke the working surfaces with a 6" nominal depth of RR3 stone to provide a smoother finished surface and line the causeway opening with RR5 stone.

Contractor is responsible for the stability and maintenance of the causeway. Benching or other embankment foundation preparation is not shown, but may be required to ensure stability. The Contractor shall take utmost care to minimize disturbance of the riverbed at all times and to prevent suspension of riverbed material. If the Engineer determines that the Contractor's activities are producing undue disturbance of the riverbed and/ or riverbed material suspension, the Contractor shall stop the work and take corrective action before proceeding.

The proposed temporary causeway will have a top elevation of 691.00. The as-designed causeway hydraulic computations and hydraulic report will be made available to the Contractor upon request.

Preparedness, Prevention, and Contingency Plan (PPC). The Contractor shall prepare a Preparedness, Prevention, and Contingency Plan, which details procedures for preventing contamination of the causeway rock and addresses clean up procedures. Contamination includes, but is not limited to, fuel, hydraulic or lubricating fluids, cleaning solutions, dirt or other debris, which will cause pollution of the river. All personnel shall be familiar with the procedures outlined in the PPC Plan. The PPC Plan shall be submitted to the Engineer for review and approval prior to commencing causeway construction activities.

The Contractor shall maintain the causeway throughout its life by adding causeway embankment to the side slopes, as required, and as directed by the Engineer. The Contractor shall immediately repair all damage caused by floodwater after the water level has returned to normal elevation and reconstruct the causeway at no additional cost to the City or Department.

Temporary facilities may not be constructed using dumped fill or any other erodible material. Erodible material is defined as material subject to transport due to normal or high flows, or material which may not be 100% recoverable from the waterway. Crushed concrete or reclaimed asphalt pavement will not be permitted.

The Contractor shall assume all risk of damage to his equipment and the work caused by inundation of his selected river access regardless of the flow event. No extension of time or compensation will be granted to the Contractor as a result of any river flow events that overtop and/or cause failure of his/ her system.

River Recreational Access: The Fox River is a public recreational and navigable waterway. The contractor shall furnish, install and, at the completion of work in the waterway, remove signage in and along the Fox River upstream of construction activities at all times. The verbiage shall highlight caution and clearly indicate canoe routes, closed channels and any other impediments to recreational use of the Fox River through the construction zone. Buoy lines to block off areas and guide recreational users to open areas shall be provided upstream and downstream of the project site.

River Blackout Periods: Any construction impacting spawning in the river shall be coordinated with the Illinois Department of Natural Resources. The Contractor is alerted to the fact that the temporary causeway may not be installed or removed in the Fox River during the fish spawning period from March 1 to June 15. Other temporary facilities in the Fox River that are placed prior to March 1 may remain in use provided there is no direct disturbance to the water. Work may continue provided that construction activities do not result in temporary or permanent impacts to the Fox River. During the Fox River blackout period, the Contractor may maintain the temporary facilities already in place prior to the blackout.

Removal: Upon completion of relevant bridge construction, remove all portions of the causeway and restore streambed and banks to original grades and conditions to the satisfaction of the Engineer.

Alternate Causeway by Contractor: Construction of the Red Gate Road Bridge as well as the Multi-Use Path Bridge will involve work in the Fox River that requires both Federal and State permits. Appropriate permits for work in the Fox River have been obtained from the U.S. Army Corps of Engineers (USACE), Illinois Department of Natural Resources - Office of Water Resources (IDNR/OWR), Illinois Environmental Protection Agency (IEPA), and the Kane-DuPage Soil and Water Conservation District. The USACE issues Section 404 permits that fulfill their regulatory function over the "waters of the United States". IDNR/OWR issues permits for construction in floodways and for crossings of streams within the public waters, which includes the Fox River. IEPA provides water quality certification pursuant to Section 401 of Clean Water Act. This certification is mandatory for all projects requiring a Section 404 Permit. Approval of the temporary soil and erosion control plans by the Kane-DuPage Soil and Water Conservation District is also a condition of the USACE 404 permit.

The Contractor is responsible for conforming to the conditions, specifications and commitments of the final Federal and State permits necessary for construction in the Fox River, including the Section 404 (Army Corp Chicago District Regional Permit Program), Section 401 (Clean Water Act, Water Quality Certification), and IDNR-OWR (Part 3700 rules for Construction in Floodways of Rivers, Lakes, and Streams as well as Part 3704 for Regulations of Public Waters as well as Part 3708 for Floodway Construction in Northeastern Illinois) permits. Kane County has submitted the permit applications with sitespecific information related to anticipated access requirements, construction techniques, Fox River hydraulic analysis, and avoidance and minimization efforts within the Fox River and jurisdictional waterway areas highlighted as part of the permit application.

The Contractor shall be solely responsible for preparing and submitting any additional information, exhibits and plans necessary to revise the existing permit prior to construction activities in the Fox River, including all information related to site-specific information that deviates from information previously submitted by the County for the purpose of securing the permit for this project. The Contractor is alerted to the fact that deviations from the site-specific information previously submitted for permit approval could result in significant delays with respect to securing the necessary permits for construction in the waterway. No extension of time or compensation will be granted to the Contractor as a result of any delay in securing the permit resulting from deviations in the site-specific information related to the Contractor's proposal.

The contractor may select to implement a temporary causeway alternative provided the contractor is able to obtain the required permits in a timely manner. An alternate causeway and/or temporary bridge plan would then need to be submitted to the Engineer for approval. Alternate causeway and temporary bridge designs are subject to the requirements of this item and shall be signed and sealed by a Structural Engineer licensed in the state of Illinois. The Contractor is fully responsible for the design of the temporary river access and is not limited to the system shown on the plans, and may propose other systems.

The Contractor shall obtain the services of a Professional Engineer, registered in the State of Illinois, to prepare the design of the alternate causeway plan and submit alternate design, including HEC-RAS hydraulic model and waterway information table, and a permit modification for approval by Kane County, U.S. Army Corps of Engineers, and the Illinois Department of

Natural Resources. The Contractor may not proceed with alternate causeway construction without written approval from all three agencies. A Contingency Plan for the alternate causeway, similar to the plan described above, shall also be provided so that the upstream created head will not be greater than 0.1 foot for all storm events including and up to the 100-year flood frequency (1 % probability of occurrence). A minimum 100'-wide navigational clearance will be required for any alternate causeway.

Method of Measurement: This work will be measured for payment as a single lump sum item. All materials, structures, signage, buoys, and appurtenances required for any and all of the proposed and/or required construction stages shall be included in the single lump sum item.

Basis of Payment: This work will be paid for at the contract lump sum price for TEMPORARY CAUSEWAY, which shall include all labor, equipment, materials, maintenance, cleanup and restoration in the event of failure or overtopping, removal and disposal of materials and structures placed in the river, engineering costs, and all other items necessary to complete the work as specified herein.

HAUL ROAD - EAST

Description: This work includes the construction, maintenance, and removal of a temporary haul road to be constructed on the east side of the Fox River during the construction of the Red Gate Road Bridge.

Materials: Materials provided for construction of the haul road will be as selected by the Contractor to provide good stability for the intended use, except as noted below. Any materials that the Contractor may want to re-use in other areas of the project shall meet IDOT standards for the application, and shall be communicated to and approved by the engineer prior to delivery to the site, to ensure agreement for the re-use and to avoid any additional costs to be incurred.

Construction: The Contractor shall locate the haul road in the general area as indicated on the contract plans. Geotextile fabric may be needed between the stone and ground line to minimize restoration work after removal. The contractor shall construct the haul road as needed to provide access for all vehicles and equipment down to areas around bridge piers. The proposed temporary haul road will have a slope and alignment that allows for use by all vehicles and equipment accessing the construction zone, including those used by the engineer or regulatory personnel.

Contractor is responsible for the stability and maintenance of the haul road. Benching or other embankment foundation preparation may be required to ensure stability. The Contractor shall take utmost care to minimize disturbance of any trees to remain at all times, will take measures to prevent erosion of the haul road material. Full compliance with the SWPPP is mandatory for this work. If the Engineer determines that the Contractor's activities are producing undue erosion of materials beyond the limits of sediment control items, excessive disturbance of trees to remain, or other negative impacts to the project or adjoining properties, the Contractor shall stop the work and take corrective action before proceeding.

The Contractor shall maintain the haul road throughout its life by adding embankment to the side slopes, as required, and as directed by the Engineer. In the event of flooding, the Contractor shall immediately repair all damage caused by floodwater after the water level has returned to normal elevation and reconstruct the haul road at no additional cost.

Temporary facilities may not be constructed using dumped fill or any other erodible material. Erodible material is defined as material subject to transport due to normal or high flows, or material which may not be 100% recoverable from the waterway. Crushed concrete or reclaimed asphalt pavement will not be permitted.

The Contractor shall assume all risk of damage to his equipment and the work caused by inundation of his selected haul road location and elevation, regardless of the flow event. No extension of time or compensation will be granted to the Contractor as a result of any river flow events that overtop and/or cause failure of his/ her system.

Upon completion of relevant project construction, the Contractor shall remove all portions of the haul road and restore the area to original grades and conditions, to the satisfaction of the Engineer.

Method of Measurement: This work will be measured for payment as a single lump sum item. All materials and appurtenances required for any and all of the proposed and/or required construction stages shall be included in the single lump sum item.

Basis of Payment: This work will be paid for at the contract lump sum price for HAUL ROAD - EAST, which shall include all labor, equipment, materials, maintenance, cleanup and restoration in the event of failure or overtopping, removal and disposal of materials, restoration of the land affected by the haul road, and all other items necessary to complete the work as specified herein.

HAUL ROAD - WEST

Description: This work includes the construction, maintenance, and removal of a temporary haul road to be constructed on the west side of the Fox River during the construction of the Red Gate Road Bridge.

Materials: Materials provided for construction of the haul road will be as selected by the Contractor to provide good stability for the intended use, except as noted below. Any materials that the Contractor may want to re-use in other areas of the project shall meet IDOT standards for the application, and shall be communicated to and approved by the engineer prior to delivery to the site, to ensure agreement for the re-use and to avoid any additional costs to be incurred.

Construction: The Contractor shall locate the haul road in the field for approval by the engineer. Minimum disturbance to existing trees shall be considered in the alignment. Trees shall be pruned and protected as necessary, and this work is subject to approval by the engineer.

Geotextile fabric may be needed between the stone and ground line to minimize restoration work after removal. The contractor shall construct the haul road as needed to provide access for all vehicles and equipment down to areas around bridge piers. The proposed temporary haul road will have a slope and alignment that allows for use by all vehicles and equipment accessing the construction zone, including those used by the engineer or regulatory personnel.

Contractor is responsible for the stability and maintenance of the haul road. Benching or other embankment foundation preparation may be required to ensure stability. The Contractor shall take utmost care to minimize disturbance of any trees to remain at all times, will take measures to prevent erosion of the haul road material. Full compliance with the SWPPP is mandatory for

this work. If the Engineer determines that the Contractor's activities are producing undue erosion of materials beyond the limits of sediment control items, excessive disturbance of trees to remain, or other negative impacts to the project or adjoining properties, the Contractor shall stop the work and take corrective action before proceeding.

The Contractor shall maintain the haul road throughout its life by adding embankment to the side slopes, as required, and as directed by the Engineer. In the event of flooding, the Contractor shall immediately repair all damage caused by floodwater after the water level has returned to normal elevation and reconstruct the haul road at no additional cost.

Temporary facilities may not be constructed using dumped fill or any other erodible material. Erodible material is defined as material subject to transport due to normal or high flows, or material which may not be 100% recoverable from the waterway. Crushed concrete or reclaimed asphalt pavement will not be permitted.

The Contractor shall assume all risk of damage to his equipment and the work caused by inundation of his selected haul road location and elevation, regardless of the flow event. No extension of time or compensation will be granted to the Contractor as a result of any river flow events that overtop and/or cause failure of his/ her system.

Upon completion of relevant project construction, the Contractor shall remove all portions of the haul road and restore the area to original grades and conditions, to the satisfaction of the Engineer.

Method of Measurement: This work will be measured for payment as a single lump sum item. All materials and appurtenances required for any and all of the proposed and/or required construction stages shall be included in the single lump sum item.

Basis of Payment: This work will be paid for at the contract lump sum price for HAUL ROAD - WEST, which shall include all labor, equipment, materials, maintenance, cleanup and restoration in the event of failure or overtopping, removal and disposal of materials, restoration of the land affected by the haul road, and all other items necessary to complete the work as specified herein.

TEMPORARY BRIDGE

Description. This work shall consist of all labor, materials and equipment necessary to design, install, and subsequently remove a temporary work bridge required to enable access to work areas during construction.

The maximum foot print of a temporary causeway and any temporary work structure in the river shall be limited to 0.25 Acre per the ACOE Regional Permit. The Contractor is responsible for determining the limits and details of the Temporary work bridge in a manner to facilitate construction.

General Construction Requirements. All methods employed for the installation and subsequent removal of temporary work bridge installed by the contractor for access or for any other reason shall be in compliance with all project permits.

The Contractor may elect to use a temporary work bridge or other temporary structure in the river to facilitate construction. The construction of the Red Gate Road Bridge may take place

during periods of high water. The Contractor shall consider the effects of scour on any temporary substructure and on the proposed foundations. The Contractor shall consider the effects of high flood waters on any temporary superstructure and ensure that any temporary means does not impact or adversely affect the existing or proposed substructures.

If temporary barges, work bridges, or platforms on piles are used for access in the river, the Contractor shall leave a minimum of one bridge span length in the river open at all times for waterway navigation.

After a temporary work bridge, platform or any other facility is no longer needed, it shall be removed per Article 513.08 of the Standard Specifications for Road and Bridge Construction.

River Recreational Access: The Fox River is a public recreational and navigable waterway. The contractor shall furnish, install and, at the completion of work in the waterway, remove signage in and along the Fox River upstream of construction activities at all times. The verbiage shall highlight caution and clearly indicate canoe routes, closed channels and any other impediments to recreational use of the Fox River through the construction zone. Buoy lines to block off areas and guide recreational users to open areas shall be provided upstream and downstream of the project site.

River Blackout Periods: Any construction impacting spawning in the river shall be coordinated with the Illinois Department of Natural Resources. The Contractor is alerted to the fact that the temporary bridges may not be installed or removed in the Fox River during the fish spawning period from March 1 to June 15. Other temporary facilities in the Fox River that are placed prior to March 1 may remain in use provided there is no direct disturbance to the water. Work may continue provided that construction activities do not result in temporary or permanent impacts to the Fox River. During the Fox River blackout period, the Contractor may maintain the temporary facilities already in place prior to the blackout.

Removal: Upon completion of relevant bridge construction, remove all portions of the temporary bridges and restore streambed and banks to original grades and conditions to the satisfaction of the Engineer.

Submittals. If the Contractor elects to use a temporary work bridge, structural plans and procedures shall be prepared and sealed by an Illinois Licensed Structural Engineer (SE), and submitted to the Engineer for review and approval.

Method of Measurement. All components of the Temporary Work Bridge installed by the contractor and their subsequent removal will not be measured for payment.

Basis of Payment. Temporary Work Bridge installed by the contractor and their subsequent removal will be paid for at the lump sum price for TEMPORARY BRIDGE.

COFFERDAM DEWATERING

Description:

Pump discharge from cofferdam dewatering shall be treated to a clean water release before discharge to the Fox River. Treatment options include pumping to a sediment basin, pumping to an existing detention basin, or pumping to a diversion channel treated with chemical flocculant. Any other method must be approved by the Engineer prior to implementation.

General Requirements:

If the contractor utilizes a sediment basin, the basin shall be of sufficient size to treat the water for a clean water release. Approval of the basin shall be provided by the engineer.

If an existing detention basin is utilized as a sediment basin, the contractor shall install a double treatment of inlet protection over the outlet to the existing detention basin. . The contractor shall not discharge to an existing detention basin if the discharge will cause overtopping of the basin, or if the water surface of the Fox River has surcharged the basin. The contractor will also be responsible for excavating any sediment from the basin to restore the basin elevations to the conditions prior to the dewatering operations. The contractor shall also be responsible for reestablishing vegetation in the areas of excavation.

If the contractor utilizes a diversion channel treated with a chemical flocculant, the following provisions shall apply:

1. The flocculant shall be a water soluble anionic polyacrylamide (PAM)
2. The mixing channel shall be of sufficient length to allow mixing of the discharge water with the flocculant to achieve a clean water release.
3. The site specific soils shall be tested by a Certified Professional in Erosion and Sediment Control (CPESC) prior to using the PAM.
4. Pam shall be mixed and/or applied in accordance with all Occupational Safety and Health Administration (OSHA) material Safety Data Sheets (MSDS) requirements and the manufacturer's recommendations for specified use.

(A) Toxicity:

All vendors and suppliers of PAM, Pam mix or blends shall present or supply a written toxicity report which verifies that the PAM, Pam mix or blend exhibits acceptable toxicity parameters which meet or exceed the requirements for the State and Federal Water Quality Standards. Cationic forms of PAM are not allowed for use under this specification.

Typical mixing channels include the bottom of the channel lined with a tightly woven fabric, overlaid with a jute mat that has been treated with a dry PAM. Pam logs may also be utilized at the upstream end of the channel. Reapplication of the dry PAM is required to obtain a clean water release. The contractor shall consult with a CPESC professional regarding the use of PAM.

Method of Measurement: Cofferdam Dewatering shall not be measured for payment separately.

Basis of Payment: Cofferdam Dewatering shall not be paid for separately, but shall be included as part of the pay item COFFERDAM (TYPE 2) of the location specified.

FURNISH CABLE STAY SYSTEM

Description. This work consists of all labor, materials, tools, and equipment necessary for the fabricating, coating, testing, and furnishing the cable stay system complete with structural strands, anchor sockets, pins, cotter pins, threaded rods, nuts, and washers in accordance with the details shown on the plans and these special provisions

Materials.

Structural Strand: Strands shall be 1¾" diameter and conforming to the requirements of ASTM A586 Helical Steel Wire Structural Strand with Class A coating for inner wires and Class C coating for outer wires. Class A coating shall be applied by the hot-dip method. The weight of Class A and Class C coatings shall be according to ASTM A586. All strands for wire test sample shall be pre-stretched to 55% of the breaking strength in accordance with ASTM A586. Any kinked or damaged strand will be rejected. Straightening of bent wires will not be permitted.

Anchor Sockets. Anchor sockets shall be standard open strand and open bridge type as furnished by Clodfelter Bridge and Structures International (CBSI), Muncy Machine & Tool Company, PA, or Wireco World Group, Kansas City, MO, or approved equal. Sockets shall be hot-dip galvanized in accordance with AASHTO M232 (ASTM A153) Specifications. Sockets shall be manufactured from ASTM A148 steel having a minimum tensile/yield of 105/85 ksi. The zinc shall conform to prime western, high grade or higher purity zinc as defined by ASTM B6. The socket shall be designed and attached to develop 110% of the breaking strength of the cable.

Ten percent of each socket lot shall be radiographically ultrasonically tested. Each socket shall be proofloaded to 55% of the breaking strength of the cable following attachment to the cable.

Pins: The pins connecting the open strand sockets to the hanger plate shall conform to the requirements of ASTM A 668, Class H. Supplemental Requirements S6 and S7 shall apply. Ultrasonic testing frequency shall be the same as for the radiographic testing of the anchor sockets.

The pins shall be Charpy V-notch impact tested in accordance with ASTM A 673, P frequency. The samples shall withstand an impact of 25 ft-lbf at 40°F.

Unless otherwise required, bore pin holes to be: 1) true to detailed dimensions; 2) smooth; and 3) straight at right angles with the axis of the member and parallel with each other. Pin diameter tolerance shall be 1/16". Ensure the surface finish of bearing surfaces that are to come into contact with each other meet the surface roughness requirements as defined in ANSI B46.1, Surface Roughness, Waviness and Lay, Part 1. Unless indicated otherwise on the plans, finish the pins and pinholes to the degree of ANSI 125 (3.125 µm).

The pins shall be galvanized in accordance with ASTM A123.

Cotter Pins: The cotter pins shall be stainless steel Type 316.

Rolled plates, and shapes: All rolled plates, shapes, and bars for structural use shall conform to the requirements of AASHTO M 270 (ASTM A 709), unless otherwise specified.

Grade of structural steel shall be as indicated on the drawings. Structural steel shall meet a longitudinal Charpy V-notch impact test requirements of AASHTO M 270, Zone 3 when sampled and tested in accordance with the procedures of AASHTO T 243 and the requirements of Section 12 of AASHTO/AWS 01.5-2008.

Threaded Rods, Nuts, Washers: The threaded rods shall conform to the requirements of ASTM A 668, Grade H. The threaded rods shall be Charpy V-notch impact tested in accordance with ASTM A 673, P frequency. The samples shall withstand an impact of 25 ft-lbf at 40°F. Nuts shall be in accordance with ASTM A 563, Grade DH3. Washers shall be in accordance with ASTM F 436, Type III.

Threaded Rods, nuts and washer shall be galvanized in accordance with ASTM A153.

Fabrication.

The contractor shall manufacture the strand to meet the specified strength requirements. When tested in direct tension, the breaking strength of each hanger strand shall be not less than 180 tons.

The strand shall be made on machines of sufficient size to insure good workmanship. Once the manufacture of the strand has been started, no changes shall be made as to the grade of wire, construction or lay of strand, or other factors which would affect the uniformity of the product.

The contractor shall pre-stretch all hanger strands by stressing each strand with a load equal to 50 percent of the breaking strength in straight tension. Pre-stretching of the strands shall follow the procedure outlined in the plans and reaches a stable condition as defined by ASTM A 586. The contractor shall determine the modulus of elasticity of each strand in accordance with ASTM A586 requirements. After the structural strand is pre-stretched, it shall not be pulled into a curve that is smaller than 5 feet

From each pre-stretched length of strand, one piece not less than 8 feet long shall be cut, after pre-stretching, and tested for strength and elasticity. The ends of the test pieces shall be socketed with sockets of a design similar to those to be used in the bridge. If, after six or more tests of pre-stretched strands have been made, the Engineer finds that the strength and elasticity have sufficient uniformity, one test may be made thereafter from each manufactured length of strand instead of one from each pre-stretched length. When examined visually, sockets used in the tests shall show no distress after testing.

The strand shall show a well defined and uniform elastic stretch and recovery under stressing.

The strand shall be measured in the shop for the various hanger lengths while under tension equal to one-quarter of the total hanger dead load values as shown on the plans.

At the time the strands are measured, the contractor shall mark a longitudinal line between sockets and shall paint a continuous stripe on the strand so as to eliminate any change in length of the strand due to twisting. Strands shall be erected with sockets in the same relative position to each other as existed when strands were measured and with paint stripe in straight line. Certified test reports covering all the tests specified herein shall be furnished to the Engineer.

The sockets shall be attached to strands in accordance with procedures submitted to the Engineer prior to fabrication, and as required to meet the tests herein specified. Care should be exercised to insure socket and strand alignment.

The wires of a strand, after being splayed in preparation for socketing, shall be cleaned of grease and other impurities by a carefully controlled process that will assure no harm is done to the wire galvanizing coating. After socketing, the strand wires adjacent to the socket shall be re-lubricated.

The basket of the socket shall be preheated to expel moisture and to prevent the molten zinc from congealing before it has completely filled the narrow lower end of the basket. Strands will be rejected if the socketing procedure results in bare wires within the socket.

The zinc used to attach the sockets to the strand shall comply with ASTM Specifications B6, High Grade, or better. The molten zinc shall be placed at the lowest practical temperature so as to minimize the affect of heat on the strands. The zinc temperature at time of pouring shall be recorded for each socket and furnished to the Engineer.

Upon fabrication of the complete cable assembly, the final length of each socketed strand shall be measured and recorded to within 0.001 of a foot at a measuring tension equivalent to the dead load tension as shown on the Contract Drawings. The actual length, as measured above shall not vary more than $\pm \frac{1}{2}$ " from the designed/calculated length (including any temperature adjustment). This deviation between the design/calculated length and actual length shall be recorded for each cable assembly and stamped onto each respective bottom anchor socket of the completed assembly.

Any deviation over the specified limits of $\pm \frac{1}{2}$ " shall be rejected and replaced with a new cable assembly.

At the time the structural strands are measured, the Contractor shall place a permanent paint stripe on the top surface of the strand which shall be referenced to eliminate any change in length of the strand due to twisting.

All assemblies shall be preassembled and delivered to the site as complete units. The assemblies shall be packaged on reels with a minimum diameter of 5 feet.

Inspection.

Each socket type shall be subjected to radiographic inspection in accordance with the following frequency: first, sixth, sixteenth, thirty-sixth, and sixty. Radiographic shot schedule of castings shall be submitted by the Contractor to the Engineer for approval for each socket type.

Radiographic inspection shall be performed by the Contractor and witnessed by the Engineer in accordance with the following ASTM Specifications, as applicable:

- ASTM E 94 - Standard Recommended Practice for Radiographic Inspection
- ASTM E 142 - Controlling Quality of Radiographic Testing
- ASTM E 446 - Standard Reference Radiographs for Steel Castings up to 2 inches in Thickness

The Contractor shall perform and provide certification for radiographic inspections to the Engineer for approval. Inspections shall be performed by approved ASNT-TC-1A examiners. (ASNT – American Society for Nondestructive Testing)

All sockets shall be fully inspected by the magnetic particle method conforming to the requirements of ASTM E 709 and acceptance standard ASTM E125.

Testing.

The tests for ultimate strength shall be made of specimens cut from both ends of each single length or coil of zinc-coated wire. The Engineer or his inspector shall witness as many of these tests as may be necessary to satisfy him that the wire meets the requirements of these specifications. When requested by the Engineer, the contractor shall, in the presence of the inspector, make check tensile test of any coils selected at random by the inspector. For making these check tensile tests, the inspector shall preferably select the coils from among those which have not been tested in his presence.

The test for stress at 0.7 percent elongation shall be made on samples from at least 10 percent of the coils as manufactured. If the strength at 0.7 percent elongation as so determined falls below the required strength in any lot of wire, the inspector may require that all coils of such lot be tested and will reject all individual coils which do not meet strength requirements.

Tests for galvanizing (weight and adherence) shall be made on samples of not less than 5 percent of the coils of any lot of wire. The percentage of coils tested for galvanizing shall be increased at the request of the Engineer. If tests of any of these coils fail to meet the requirements, then tests shall be made of all of the coils in the lot. Unless at least 80 percent of the coils pass the test, the entire lot will be rejected. Any coil failing to meet requirements will be rejected.

The anchor sockets shall be Charpy V-notch impact tested in accordance with ASTM A781, Supplemental Requirement S9. The testing frequency shall be the same as for the radiographic testing. The samples shall withstand an impact of 25 ft-lbf at 40°F. Large sand spots, inclusions and blow holes, as determined by the Engineer, shall be cause for rejection of the casting.

Defects exceeding the degree shown in the following table shall be cause for rejection of a socket.

Category	Defect	Degree Permitted
A	Gas Porosity	3
B	Sand Slag Inclusions	3
C	Shrinkage	3
D	Crack	Not Permitted
E	Hot Tear	Not Permitted
F	Insert	Not Permitted
G	Mottling	Not Permitted

In order to confirm the effectiveness of the sockets the contractor shall prepare at least six test specimens of strand for test purposes. Test specimens at least 25 strand diameters long, with sockets (selected at random from those which are to be used in filling the order) attached to each end, shall be stressed to destruction in a suitable testing machine. The sockets used for

these tests shall not be used in the structure. Under this test the specimens shall develop the ultimate strengths above specified. Material and method of socketing shall be the same for both test specimens and bridge strands. The sockets in every instance shall be of sufficient strength to produce failure in the strand material.

A test for modulus of elasticity and breaking strength shall be performed on each manufactured length of strand. The gauge length of the specimen shall be 100 inches. The strand shall have the sockets attached to each end and shall be loaded through the sockets. The socketing procedures used for the test specimen and assemblies shipped to site shall be identical. If it fails to meet the minimum breaking strength requirements, another test sample shall be cut from the same manufactured length and tested. Should it also fail, the manufactured length of strand may be rejected. If rejected, the contractor shall furnish new strand length that is subject to the same testing and approval procedures outlined herein. The contractor shall not be compensated for the cost including testing costs of the rejected strand. The test results shall be submitted to the Engineer for approval.

Certified test reports covering all the tests specified herein shall be furnished to the Engineer. The Contractor shall submit certification of the following:

- manufacture of strand to this specification
- tensile strength of strand
- modulus of elasticity of strand
- actual breaking strength
- prestretching, measuring and proof loading
- material certification of sockets, pins, threaded rods, nuts, and washers

Working drawings shall be submitted for all hanger assemblies for approval by the Engineer prior to commencing with the work.

Method of Measurement. The work under this item will not be measured for payment.

Basis of Payment. The work under this item will be paid for at the contract lump sum price for FURNISH CABLE STAY SYSTEM, which price will be payment in full for furnishing, fabricating, testing and inspecting of the cable stay assemblies including structural strand, anchor sockets, pins, threaded rods, nuts, washers, cotter pins, and for galvanizing.

FURNISHING AND ERECTING STRUCTURAL STEEL BRIDGE NO. 1

Description. This work consists of all labor, materials, tools, and equipment necessary for the furnishing, fabricating, shop painting, and erecting of all structural steel and fixed steel bearing assemblies to the jobsite, as shown on the plans, according to the requirements of Section 505 of the Standard Specifications and as specified in these Special Provisions.

This work shall include the furnishing and erecting of all materials including, but not limited to, steel beams, splice plates, transverse floor beams, lateral bracing members, anchor bolts, shear stud connectors, all field fasteners, and anchorage assemblies. This work also includes erection of the cable stays. Any additional work required to test, install, and adjust the cable stays as part of the erection of the pedestrian bridge including, but not limited to, additional jacking or adjustment of the cable tension, shall be included as part of this provision. The Contractor shall be responsible for testing the final loads in the cables at the conclusion of construction. A

minimum of 6 stay cables (2 of each length at the direction of the Engineer) shall be tested for final load after the bridge deck has been constructed.

Painting: Contractor shall submit a color sample (12"x12" minimum painted on carbon steel) for approval prior to ordering paint. Cost of color sample shall be included with this item.

Erection. The structural steel shall be erected according to the requirements of Article 505.08 of the Standard Specifications and this special provision.

Due to the unique structural system used in this bridge, the loads in the primary structural components are dependent on the erection procedure used, and the geometric tolerances maintained during construction.

The Contractor shall develop an erection sequence of his own choosing and shall be responsible for its analysis.

Modifications of the structure for erection purposes may be permitted provided they will have no adverse engineering or aesthetic effect on the completed structure. Modifications shall be performed at no additional cost to the contract. Complete details and stress computations shall be submitted to the Engineer for all revisions to the Plans. No revisions shall be made to the Plans without written approval by the Engineer.

If falsework supports are necessary, the location of such supports shall be in at the same locations as indicated in the Contractor's approved working drawings. The falsework supports shall be properly designed, constructed and maintained to adequately support the weight of the steel framing and other construction loads that it would support prior to its removal. The supports shall be designed considering the actual elevations and shall have provisions for vertical adjustment of the girders. The design of all falsework and formwork shall meet the requirements of article 503.05 and Article 503.06, respectively, of the Standard Specifications and those of the AASHTO Guide Design Specifications for Temporary Works.

The Contractor shall be responsible for geometric control of construction so that the completed structure will conform to the lines, grades, and dimensions and cable stresses on the plans. A Geometric Control Plan shall provide for the regular monitoring of the cable-supported superstructure deflections beginning with the addition of the first cantilever field sections and concluding with the placement of the deck and railing. The Contractor shall plan on a bridge-wide adjustment of all cables at least 3 times during main span erection, and once again after the deck and railing have been installed.

Girders and bearings shall be blocked during erection to provide lateral and torsional stability, and to prevent damage to girders and bearings. All field bolted connections including splices shall be brought to snug tight while the framing members are being erected, and shall be torqued after framing for the system is completely erected and checked for proper alignment, plumbness and elevations. The falsework must be removed prior to placement of deck concrete unless the Contractor's plan and procedures show the need for them during deck placement.

The threaded rods in the pier anchorage assemblies shall be pre-tensioned to a slip critical type connection prior to installing the cable stays.

The cables shall be installed without twist. The distance between the bottom of the bottom anchor socket and the centerline of the top pin shall be adjusted by subtracting the deviation

stamped on the bottom anchor socket from the theoretical distance between the bottom of the bottom anchor socket and the centerline of the pin.

The intermediate static and dynamic stability, including wind stability of the structure for the various stages of the construction shall be the responsibility of the Contractor. A series of wind tunnel tests have been conducted on models of the proposed structure. A report of the test results will be made available to the Contractor upon request. The accuracy of the information is not guaranteed and it is not to be construed as part of the plans governing construction of the project. Contractors shall make their own determinations and evaluations of information made available in this report.

Detailed Erection Sequence Submittals:

The Contractor shall submit sufficient drawings, plans, written descriptions, and any calculations or supporting data that describe in detail the proposed Detailed Erection Sequence, including the following:

- The results of the Contractor's erection sequence analysis,
- All calculations required to show the adequacy of structural components to support the erection loads,
- All cambers for steel components,
- Design drawings and calculation for all falsework and temporary construction supports,
- A construction narrative with all major changes in load or structure including the removal of falsework,
- Complete details of stay cable erection, stressing and monitoring shall be submitted,
- A geometric control plan, with displacements throughout erection,
- Details for how the in -place load data will be determined (load cell attachment and equipment) after placement of the deck.
- Details for the use of direct tension indicator washers on the threaded rods in the upper anchorage assembly

Erection Sequence Analysis:

A step-by-step analysis shall be made by the Contractor, in accordance with the Contractor's chosen construction methods, sequence, and schedule. The analysis shall:

- Include all construction stages which encompass significant changes in load or structure,
- Include all critical moments, shears, axial loads, and torsion for cables, and superstructure at sufficient locations to describe the state of forces in the structure.
- Encompass all structural elements of the bridge, including the piers and the superstructure,
- Include any temporary construction support, or falsework which supports or loads any portion of the permanent structure.
- Include the effects from all significant loads during the construction process, such as the weight of equipment and materials on the bridge, wind loads on the structure and supported objects during construction,
- Account explicitly for the effect of the order of construction on the forces in the structure,
- Account for the three dimensional nature of the superstructure, including the effects of camber in the main longitudinal steel elements as well as the floor beams,

- Confirm the strength and stability of the structure throughout the erection procedure.

Method of Measurement. All structural steel shown on the plans for the Multi-use Trail Bridge shall be included for payment unless it is specifically included with a separate pay item.

Basis of Payment. The work under this item will be paid for at the contract lump sum price for FURNISHING AND ERECTING STRUCTURAL STEEL BRIDGE NO. 1, which price will be payment in full for fabrication, testing, transporting, and erecting of all structural steel and the erection of the cable assemblies complete with all sockets, pins, washers, nuts, and structural cables including adjustments as necessary.

FURNISHING AND ERECTING STRUCTURAL STEEL BRIDGE NO. 2

Description. This work consists of all labor, materials, tools, and equipment necessary for the furnishing, fabricating, shop painting, and erecting of all structural steel for the Red Gate Road Vehicular Bridge (SN 045-6024), as shown on the plans, according to the requirements of Section 505 of the Standard Specifications.

TRANSFORMER PLATFORM

DESCRIPTION: This item shall consist of furnishing all labor, materials, and equipment necessary for construction of a 42" x 42" utility transformer pad as noted on the plans.

GENERAL:

- A. Prior to commencing excavation in immediate vicinity of a structure, notify the Owner of the structure, giving date of beginning of such Work. During course of Work adjacent to such property, comply with applicable requirements for protection of the structure.
- B. Coordinate placement of materials with other contractors on the project to cause the least inconvenience to their Work.
- C. Expose existing utilities crossing the proposed duct bank prior to construction to allow the Engineer to check for conflicts. Protect utilities from disturbance throughout Work.

Backfill for Crossing Utilities:

1. Use granular backfill material to support sewers, building sewers, water main and other utilities crossing duct bank trenches.
2. Compact granular material to minimum 95% maximum density as determined by ASTM D1557, Method D (Modified Proctor).
3. Contractor may, with written approval of the Engineer, substitute reinforced concrete beams.

Dispose of excess excavated material in accordance with Article 202.03 of the Standard Specifications.

MATERIALS. Materials shall be according to the following.

Item	Article/Section
Coarse Aggregate 6.....	1004
Rigid Nonmetallic Conduit.....	1088.01 (b)

CONSTRUCTION REQUIREMENTS. The Contractor shall coordinate with the City of St. Charles' Electric Utility group to receive the precast concrete transformer pad as well as the city utility requirements.

METHOD OF MEASUREMENT. The transformer platform pad will be measured for payment in square yards, for the excavation, necessary conduit stub outs, gravel base, and the setting of the precast transformer pad.

BASIS OF PAYMENT: This work will be paid for at the contract unit price per square yard for TRANSFORMER PLATFORM.

JUNCTION BOX (SPECIAL)

This pay item shall be in accordance with Section 813 of the Standard Specifications, except as modified below.

Section 813.03 shall be replaced with:

813.03 Installation. Exposed junction boxes on structures shall be installed on ½ in. long stainless steel spacers with the hinge on the underside of the box and the cover lying in the horizontal plane when closed. The exact orientation shall be as shown on the plans or as directed by the Engineer. Care shall be taken to assure proper orientation of mounting lugs.

Field cut conduit openings shall be uniform and smooth. All burrs and rough edges shall be filed smooth prior to the installation of conduit(s) into the junction box. Field cut conduit openings shall be fitted with the appropriate conduit fittings and accessories.

BASIS OF PAYMENT: This work will be paid for at the contract unit price per each for JUNCTION BOX, SPECIAL.

CONDUIT ENCASED, REINFORCED CONCRETE, 6" DIA., PVC 3 WIDE X 4 HIGH
CONDUIT ENCASED, REINFORCED CONCRETE, 6" DIA., PVC 3 WIDE X 2 HIGH

DESCRIPTION: This item shall consist of furnishing all labor, materials, conduit laying and equipment necessary for construction of the reinforced concrete encased conduit duct bank of the size as noted on the plans.

GENERAL:

- A. Prior to commencing excavation in immediate vicinity of a structure, notify the Owner of the structure, giving date of beginning of such Work. During course of Work adjacent to such property, comply with applicable requirements for protection of the structure.

- B. Coordinate placement of materials with other contractors on the project to cause the least inconvenience to their Work.
- C. Expose existing utilities crossing the proposed duct bank prior to construction to allow the Engineer to check for conflicts. Protect utilities from disturbance throughout Work.

Backfill for Crossing Utilities:

- 1. Use granular backfill material to support sewers, building sewers, water main and other utilities crossing duct bank trenches.
- 2. Compact granular material to minimum 95% maximum density as determined by ASTM D1557, Method D (Modified Proctor).
- 3. Contractor may, with written approval of the Engineer, substitute reinforced concrete beams.

Dispose of excess excavated material in accordance with Article 202.03 of the Standard Specifications.

Any required sheeting shall be included in the cost of the duct bank specified.

The trenching and backfilling for this pay item shall be paid for as "TRENCH AND BACKFILL, SPECIAL."

MATERIALS. Materials shall be according to the following.

Item	Article/Section
Rigid Metal Conduit.....	1088.01(a)
Rigid Nonmetallic Conduit.....	1088.01(b)
Portland Cement Concrete.....	1020

Concrete shall be Class SI for all encased conduit runs.

All bends that form an angle greater than 45 degrees, shall be made of galvanized steel.

CONSTRUCTION REQUIREMENTS. Installation of encased conduit runs shall be per Article 810.03(d) of the Standard Specifications.

METHOD OF MEASUREMENT. This work will be measured for payment in feet in place. Measurements will be made in straight lines along the centerline of the conduit between ends and changes in direction.

Vertical conduit will be measured for payment. The vertical distance required for breakaway devices, barrier wall, concrete pedestals, etc., and the depth of any burial will be measured. Changes in direction shall assume perfect straight line runs, ignoring actual raceway sweeps.

BASIS OF PAYMENT: This work will be paid for at the contract unit price per foot for CONDUIT ENCASED, REINFORCED CONCRETE, 6" DIA., PVC of the size specified.

ELECTRICAL MANHOLE, TYPE I, SPECIAL
ELECTRICAL MANHOLE, TYPE II, SPECIAL

DESCRIPTION: This item shall consist of furnishing all labor, materials, excavation, bedding, cover, backfill, and equipment necessary for construction of electrical manholes meeting the requirements of the City of St. Charles, as shown on the plans and as directed by the Engineer.

MATERIALS. Materials shall be according to the applicable sections of Article 602.02 of the Standard Specifications.

CONSTRUCTION REQUIREMENTS. Construction shall be according to the applicable sections of Articles 602.04 through 602.12 of the Standard Specifications.

BASIS OF PAYMENT: This work will be paid for at the contract unit price per each for ELECTRICAL MANHOLE, SPECIAL of the type specified.

ELECTRIC CABLE IN CONDUIT NO. 20 3/C, TWISTED SHIELDED

Description: This work shall consist of furnishing and installing an electric cable of the type, size, and number of conductors specified for use in the emergency vehicle priority system.

General: Furnishing and installing the cable shall be in accordance with Article 873 and Article 1076.04 of the Standard Specifications for Road and Bridge Construction and the District 1 Traffic Signal Specifications, revised January 1, 2012. It is the contractor's responsibility to ensure that the cable is compatible with the emergency vehicle priority system of the municipality or fire district and the installation of the cable is in accordance with the emergency vehicle priority system's manufacturer requirements.

Method of Measurement: Electric cable will be measured for payment in feet in place. The length of measurement shall be the distance horizontally and vertically measured between the changes in direction, including cables in mast arms, mast arm poles, signal posts and extra cable length as specified in Article 873.03. The vertical cable length shall be measured according to the schedule provided in Article 873.05

Basis of Payment: This work will be paid for at the contract unit price per foot for ELECTRIC CABLE IN CONDUIT NO. 20 3/C, TWISTED SHIELDED.

CATCH BASINS, TYPE A, 4' DIAMETER TYPE 8 GRATE
CATCH BASINS, TYPE A, 4' DIAMETER, TYPE 24 FRAME AND GRATE
CATCH BASINS, TYPE C, TYPE 8 GRATE
MANHOLE, TYPE A, 4' DIAMETER, TYPE 1 FRAME, CLOSED LID

DESCRIPTION: Work under these items shall be performed in accordance with the applicable portions of Section 602 of the Standard Specification, except as modified herein.

The work shall consist of constructing the specified manhole or catch basin type to the proposed grade at the location indicated on the plans, or as specified by the Engineer.

GENERAL REQUIREMENTS:

Standard details for the noted structures shall be in accordance with IDOT standards, except along Red Gate Road. Structure call outs include "STC" along Red Gate Road and shall be in accordance with the St. Charles Storm Sewer Details sheet included in the contract plans. When a solid cover is needed, the Standard Cover Detail on the St. Charles Storm Sewer Detail Sheet shall be used.

Flat slab tops meeting the requirements of IDOT Standard 602601-02, PRECAST REINFORCED CONCRETE FLAT SLAB TOP shall be used when called for in lieu of tapered tops, the cost of which shall be included in the price of the manhole or catch basin.

All manhole structures and catch basins shall be cleaned of any accumulation of silt, debris or foreign matter of any kind, and shall be free of any such accumulation at the time of final inspection.

MATERIAL ACCEPTANCE: The Contractor must provide Manufacturer's catalog cuts showing materials meet the Specifications.

METHOD OF MEASUREMENT: Work under this item will be measured on a per each basis of the type of manhole or catch basin specified and installed.

BASIS OF PAYMENT: This work will be paid for at the contract unit price each for MANHOLE, TYPE A, 4' DIAMETER TYPE 1 FRAME, CLOSED LID; CATCH BASINS, TYPE A, 4' DIAMETER, TYPE 8 GRATE; CATCH BASINS, TYPE A, 4' DIAMETER, TYPE 24 FRAME AND GRATE; CATCH BASINS, TYPE C, TYPE 8 GRATE

The prices of these items will include all materials, supplies, equipment, labor, excavation (except excavation in rock), disposal of excavated materials, dewatering, temporary shoring and all other work required to complete the installation.

DETENTION BASIN OUTLET STRUCTURE

DESCRIPTION: Work under this item will be performed in accordance with the applicable portions of Sections 542 and 602 of the Standard Specifications. This work shall consist of constructing a restrictor structure with a concrete baffle wall, together with the necessary cast iron frames and grates or lids. Additionally, construction of the trash rack and 38 feet of 24" RCCP given in the Pond Outlet Detail in the contract plans shall also be included in this work.

GENERAL REQUIREMENTS:

Standard details for the noted structure shall be in accordance with the Drainage East Pond Outlet Structure Detail sheet in the contract plans. Installation of the trash rack and 24" RCCP noted in the Pond Outlet Detail, also on the Drainage East Pond Outlet Structure Detail sheet in the contract plans shall be included. For the solid covers needed, the Standard Cover Detail on the St. Charles Storm Sewer Details sheet shall be used.

Flat slab top generally meeting the requirements of IDOT Standard 602601-02, PRECAST REINFORCED CONCRETE FLAT SLAB TOP shall be used, but tailored to the dimensions and requirements needed for a structurally sound installation. A Structural Engineer shall sign and seal the details for this flat slab top. The cost of this structural design, and the flat slab top, shall be included in the price of the structure.

The 24" RCCP shall be Type 1 and installed on the bottom of the basin on a stable bed of compacted material in accordance with Section 542 to prevent any settlement following installation and the subsequent refilling of the wet-bottom pond.

This structure shall be cleaned of any accumulation of silt, debris or foreign matter of any kind, and shall be free of any such accumulation at the time of final inspection.

MATERIAL ACCEPTANCE: The Contractor must provide Manufacturer's catalog cuts showing materials meet the Specifications. This shall include a Structural Engineer's seal and signature for the flat slab top.

METHOD OF MEASUREMENT: Work for this item will be measured for payment in place per each.

BASIS OF PAYMENT: Work for this item will be paid for by contract price for each DETENTION BASIN OUTLET STRUCTURE.

The price of the items described will include all materials, supplies, equipment, labor, excavation (except excavation in rock), disposal of excavated materials, dewatering, temporary shoring and all other work required to complete the installation.

DUCTILE IRON WATER MAIN, 12"
DUCTILE IRON WATER MAIN, 16"

DESCRIPTION: This work consist of, but is not limited to, furnishing all labor, tools, equipment and material necessary for the installation of watermain and all required fittings to the lines and grades shown on the Plans, specified, or as directed by the Engineer.

GENERAL REQUIREMENTS: Water main installation consists of removing surface features (road surface, curbing, lawn, etc.), excavating to neat lines, removal of spoil, dewatering and furnishing and installing pipe, fittings and appurtenances as indicated on the plans, water main encasements in proximity to sewers, pipe bedding and backfill to 12" above top of pipe. Also included in the work is the furnishing of suitable methods of thrust restrain as specified or approved by the Engineer, as well as furnishing and installing polyethylene encasement for all ductile iron pipe and fittings as required by Standard Specifications for Water and Sewer Construction in Illinois, latest edition and the City of St. Charles Engineering Design and

Inspection Policy Manual, updated January 2010. Sheeting, bracing or methods required to make trench safe, stable and in compliance with all applicable safety requirements and/or codes will also be included within this item. The cost of satisfactorily performing pressure tests and disinfecting the water main in accordance with the City of St. Charles Engineering, Design and Inspection Policy Manual will be included in this item. This work will include, but not limit to, the installation of the gaskets, megalugs and tightening of all gland nuts and bolts.

Watermain shall be Ductile Iron Class 52, conforming to AWWA Standard C-151. Cement lining shall conform to AWWA Standard C-104. Mechanical or push-on joints shall conform to AWWA Standard C-111. At minimum, Type 3 laying conditions shall be provided, conforming to AWWA Standard C-600.

All watermains shall be encased in a High Density polyethylene encasement with its material specifications and installation method in accordance with ANSI.AWWA C105/A21.5, ASTM A674, using "Method A" installation.

All mechanical joint fittings shall have restraining glands installed. Restraint device shall be Uni-flange by Ford Company or Mega-lug by EBAA Iron or approved equal. Push joint pipe restraint shall be Field Lock Gaskets by US Pipe or Series 1700 Mega-lug or Series 1390 Pipe Restraint by Fordor approved equal. Lengths of pipe restraint shall be determined from manufacturer's installation specifications (refer to watermain restraint detail).

All water main, hydrant leads, and services must have a minimum cover of five (5) feet, and a maximum cover of ten (10) feet. Variations from these standards will require approve of appropriate Engineering Division.

All trenches within (3) feet of paved surfaces, or at a distance specified by the Engineer, shall be backfilled with CA-7 (Virgin Crushed Limestone). FA-6 (clean beach sand) material shall be used in all other unpaved locations. All backfill material shall be properly compacted unless otherwise directed by the Engineer.

MATERIAL ACCEPTANCE: The Contractor must provide a Manufacturer's catalog cuts showing materials meet the Specifications.

METHOD OF MEASUREMENT: Work under this item will be measured as the actual length of Ductile Iron Water Main of the size indicated, exclusive of lengths specifically included in other bid items. All fittings (including reducers, tees, bends, adapters, as required), thrust restraints, testing, chlorination, polyethylene wrappings, etc. as indicated on the plans will be considered included the unit price of the water main and will not be measured or weighed separately for payment.

BASIS OF PAYMENT: This work will be paid for at the contract unit price per foot for DUCTILE IRON WATER MAIN, of the size specified. The price of these items will include all pipe, fittings, excavation, disposal of existing material, bedding, any dewatering and/or sheeting or shoring, water main encasements in proximity to sewers, pipe bedding and backfill to 12" above top of pipe, all required pressure testing and disinfection prior to placing the water main in service, thrust restraints, and all other work required to complete the water main installation a specified. Backfilling and compaction of the trench 12" above top of pipe to surface will be paid for separately as TRENCH BACKFILL and TRENCH BACKFILL, (SPECIAL).

DUCTILE IRON WATER MAIN WITHIN 24" CASING PIPE, OPEN CUT, 12"
DUCTILE IRON WATER MAIN WITHIN 30" CASING PIPE, OPEN CUT, 16"

DESCRIPTION: Ductile iron water main within casing pipe shall be installed within IDOT roadways using the open cut method if shown on the plans. This work consist of, but is not limited to, furnishing all labor, tools, equipment and material necessary for the installation of casing, watermain, spacers and all required fittings to the lines and grades shown on the Plans, specified, or as directed by the Engineer.

GENERAL REQUIREMENTS:

Water main within casing pipe installation consists of removing surface features (road surface, curbing, lawn, etc.), excavating to neat lines, removal of spoil, dewatering and furnishing and installing pipe, fittings and appurtenances as indicated on the plans, water main encasements in proximity to sewers, pipe bedding and backfill to 12" above top of casing pipe. Also included in the work is the furnishing of suitable methods of thrust restrain as specified or approved by the Engineer, as well as furnishing and installing polyethylene encasement for all ductile iron pipe and fittings as required by Standard Specifications for Water and Sewer Construction in Illinois, latest edition and the City of St. Charles Engineering Design and Inspection Policy Manual, updated January 2010. Sheeting, bracing or methods required to make trench safe, stable and in compliance with all applicable safety requirements and/or codes will also be included within this item. The cost of satisfactorily performing pressure tests and disinfecting the water main will be included in this item. This work will include, but not limit to, the installation of the gaskets, megalugs and tightening of all gland nuts and bolts.

Pipe Casing: Steel pipe casing shall conform to the requirements of AWWA C200 and ASTM A139 (straight seam pipe only), Grade "B" with a minimum yield strength of 35,000 psi and be of the thickness equal to or exceeding 0.375 inches. Pipe casing to be placed by open cut excavation method shall be in accordance with ANSI/AWWA C203. The casing shall be shop cut with ends square with centerline, leveled and welded so that the entire length of the casing shall be straight and true.

Field and shop welds of the casing pipes shall conform to the American Welding Society (AWS) standard specifications and shall be performed by qualified welders. Field welds shall be complete penetration (butt welded), single-bevel groove type joints in accordance with the requirements of ANSI/AWWA C206. Welds shall be airtight, continuous over the entire circumference of the pipe, and shall not increase the outside pipe diameter by more than $\frac{3}{4}$ - inch. Nor shall there be intrusion of the weld metal into the bore of the casing. It shall be the Contractor's responsibility to provide stress transfer across the joints which is capable of resisting the jacking forces involved.

Spacers: Carrier pipe shall be supported within the casing pipe by "Cascade" spacers or approved equal shall be utilized. Following completions of the auger, the casing shall be filled with pea gravel or sand, the ends shall have end boots installed.

Casing spacer shall be a two-piece shell per carrier pipe and made from T-304 stainless steel of a minimum 14 gauge thickness. Each shell section shall be lined with a 0.090" thick, ribbed PVC extrusion with a retaining section that overlaps the edges of the shell and prevents slippage. Bearing surfaces (runners) shall be ultra high molecular weight polyethylene (UHMW) to provide abrasion resistance and a low coefficient of friction (0.12). The runners shall be attached to support structures (risers) at appropriate positions to properly support the carrier pipe within the

casing pipe and to ease installation. The runners shall be mechanically bolted to the riser. The bolt heads are welded to the inside of the risers for strength. Risers shall be made of T-304 stainless steel of a maximum 10 gauge. All risers shall be MIG welded to the shell. Bottom risers 6" and over in height shall be reinforced. All reinforcing plates shall be 10 ga. T-304 stainless steel and shall be MIG welded to mating parts. Spacers shall be placed 10' apart throughout the casing pipe.

Carrier Pipe: Watermain shall be Ductile Iron Class 52, conforming to AWWA Standard C-151. Cement lining shall conform to AWWA Standard C-104. Restrained joint fittings and the restraining components shall be Ductile Iron in accordance with applicable requirements of ANSI/AWWA C110/A21.10 and/or C153/A21.53 with the exception of the manufacturer's proprietary design dimensions. Restrained joint pipe and fittings shall be U.S. Pipe's TR FLEX Pipe and Fittings or approved equal. Restraint of field cut pipe shall be provided with U.S. Pipe's TR FLEX GRIPPER Ring, TR FLEX Pipe field weldments or approved equal. Restrained joints for pipe and fittings shall be designed for a water working pressure of 350 psi.

MATERIAL ACCEPTANCE: The Contractor must provide a Manufacturer's catalog cuts showing materials meet the Specifications.

METHOD OF MEASUREMENT: Measurement will be based on lineal feet of casing and carrier pipe and all other materials and equipment necessary to install the casing and carrier pipe.

BASIS OF PAYMENT: This work will be paid for at the contract unit price per foot for DUCTILE IRON WATER MAIN WITHIN CASING—OPEN CUT, of the sizes specified. The price of these items will include all casings, pipe, fittings, spacers, excavation, disposal of existing material, bedding, any dewatering and/or sheeting or shoring, water main encasements in proximity to sewers, pipe bedding and backfill to 12" above top of casing pipe, all required pressure testing and disinfection prior to placing the water main in service, thrust restraints, and all other work required to complete the water main installation as specified. Backfilling and compaction of the trench 12" above top of casing pipe to surface will be paid for separately as TRENCH BACKFILL and TRENCH BACKFILL SPECIAL.

STORM SEWER (WATER MAIN REQUIREMENTS) 12 INCH

DESCRIPTION: This work consist of, but is not limited to, furnishing all labor, tools, equipment and material necessary for the installation of 12 inch PVC storm sewer, to the lines and grades shown on the Plans, specified, or as directed by the Engineer.

GENERAL REQUIREMENTS: Storm sewer installation consists of removing surface features (road surface, curbing, lawn, etc.), excavating to neat lines, removal of spoil, dewatering and furnishing and installing pipe, as indicated on the plans, pipe bedding and backfill to 12" above top of pipe. This work shall be performed as required by Standard Specifications for Water and Sewer Construction in Illinois, latest edition and the City of St. Charles Engineering Design and Inspection Policy Manual, updated January 2010. Sheeting, bracing or methods required to make trench safe, stable and in compliance with all applicable safety requirements and/or codes will also be included within this item.

Storm sewer installed for this item shall be PVC pipe, rigid, SDR 26 with push-on gaskets. Joints and gaskets shall be as required to meet water main requirements as given in the

Standard Specifications for Water and Sewer Construction in Illinois, latest edition and the City of St. Charles Engineering Design and Inspection Policy Manual, updated January 2010.

All trenches within (3) feet of paved surfaces, or at a distance specified by the Engineer, shall be backfilled with TRENCH BACKFILL (SPECIAL). All backfill material shall be properly compacted unless otherwise directed by the Engineer.

MATERIAL ACCEPTANCE: The Contractor must provide a Manufacturer's catalog cuts showing materials meet the Specifications.

METHOD OF MEASUREMENT: Work under this item will be measured as the actual length of storm sewer of the size indicated, exclusive of lengths specifically included in other bid items. All work as indicated on the plans will be considered included in the unit price of the storm sewer and will not be measured separately for payment.

BASIS OF PAYMENT: This work will be paid for at the contract unit price per foot for STORM SEWER (WATER MAIN REQUIREMENTS) 12 INCH. The price of this item will include all pipe, excavation, disposal of existing material, bedding, any dewatering and/or sheeting or shoring, pipe bedding and backfill to 12" above top of pipe, all required testing prior to placing the storm sewer in service, and all other work required to complete the storm sewer installation as specified. Backfilling and compaction of the trench 12" above top of pipe to surface will be paid for separately as TRENCH BACKFILL, (SPECIAL).

WATERMAIN SPECIAL

GENERAL Contractor is to provide a lump sum price for WATERMAIN SPECIAL to provide a complete river crossing installation for a new watermain. The Contractor can install this item in either of two methods: ductile iron pipe in casing river crossing option or HDPE river crossing option. Contractor is to provide all labor and materials for a complete river crossing. The river crossing water main will be either 16" ductile iron pipe or 18" HDPE pipe.

DUCTILE IRON PIPE IN CASING METHOD: This item consists of, but is not limited to, boring and jacking pits and equipment, sheeting, steel casing pipe, skid, steel straps, coatings, thrust blocks, tie down blocking, restrained joint piping from Sta. 108+00 to Sta. 118+00, installation of the carrier pipe, skid, steel straps, coatings, pipe bedding and backfill to 12" above top of casing pipe, installation of the carrier pipe within the casings, miscellaneous appurtenances to complete the entire work as shown on the Construction Drawings, and restoration.

The equipment used in boring and jacking casings shall be of adequate commercial size and satisfactory working condition for safe operation, and may be subject to approval by the City of St. Charles at the discretion of the Engineer. Such approval, however, shall not relieve the Contractor of the responsibility for making a satisfactory installation meeting the criteria set forth herein. Only workmen experienced in boring and jacking operation shall be used in performing the Work.

Provide all structures, safety equipment, and professional services required to provide for the health and safety of the general public and of personnel involved in pipe boring and jacking work in accordance with the requirements of the regulatory agencies having jurisdiction.

Take all measurements necessary to protect surrounding public and private property, adjacent buildings, roads, drives, sidewalks, drains, sewers, utilities, trees, structures, and appurtenances from damage due to pipe boring and jacking work. Responsibility and payment for correction of such damage shall be the sole responsibility of the Contractor.

All water pumped out of the jacking and boring pits shall be treated in accordance with the special provision for COFFERDAM DEWATERING.

GENERAL REQUIREMENTS:

Pipe Casing: Steel pipe casings shall conform to the requirements of AWWA C200 and ASTM A139 (straight seam pipe only), Grade "B" with a minimum yield strength of 35,000 psi and be of the thickness equal to or exceeding 0.375 inches.

Field and shop welds of the casing pipes shall conform to the American Welding Society (AWS) standard specifications and shall be performed by qualified welders. Field welds shall be complete penetration (butt welded), single-bevel groove type joints in accordance with the requirements of ANSI/AWWA C206. Welds shall be airtight, continuous over the entire circumference of the pipe, and shall not increase the outside pipe diameter by more than $\frac{3}{4}$ inch. Nor shall there be intrusion of the weld metal into the bore of the casing. It shall be the Contractor's responsibility to provide stress transfer across the joints which is capable of resisting the jacking forces involved. Welder certifications shall be submitted to the Engineer prior to construction.

Spacers: Carrier pipe shall be supported within the casing pipe by "Cascade" spacers shall be utilized exclusively. Following completions of the auger, the casing shall be filled with pea gravel or sand, the ends shall have end boots installed.

Casing spacer shall be a two-piece shell per carrier pipe and made from T-304 stainless steel of a minimum 14 gauge thickness. Each shell section shall be lined with a 0.090" thick, ribbed PVC extrusion with a retaining section that overlaps the edges of the shell and prevents slippage. Bearing surfaces (runners) shall be ultra high molecular weight polyethylene (UHMW) to provide abrasion resistance and low coefficient of friction (0.12). The runners shall be attached to support structures (risers) at appropriate positions to properly support the carrier pipe within the casing pipe and to ease installation. The runners shall be mechanically bolted to the riser. The bolt heads are welded to the inside of the risers for strength. Risers shall be made of T-304 stainless steel of a maximum 10 gauge. All risers shall be MIG welded to the shell. Bottom risers 6" and over in height shall be reinforced. All reinforcing plates shall be 10 ga. T-304 stainless steel and shall be MIG welded to mating parts. Spacers shall be placed 10' apart throughout the casing pipe.

Carrier Pipe. Watermain shall be Ductile Iron Class 52, conforming to AWWA Standard C-151. Cement lining shall conform to AWWA Standard C-104. Restrained joint fittings and the restraining components shall be Ductile Iron in accordance with applicable requirements of ANSI/AWWA C110/A21.10 and/or C153/A21.53 with the exception of the manufacturer's proprietary design dimensions. Restrained joint pipe and fittings shall be U.S. Pipe's TR FLEX Pipe and Fittings or approved equal. Restraint of field cut pipe shall be provided with U.S. Pipe's TR FLEX GRIPPER Ring, TR FLEX Pipe field weldments or approved equal. Restrained push-on joints for pipe and fittings shall be designed for a water working pressure of 350 psi.

Augering Fluids: Augering fluids shall use a mixture of bentonite clay, or other approved stabilizing agent, mixed with potable water with a minimum pH of 6.0 to create the drilling fluid

for lubrication and stabilization, as necessary. Vary the fluid viscosity to best fit the soil conditions encountered. Do not use other chemical or polymer surfactant in the drilling fluid without written consent of the Engineer. Certify in writing to the Engineer that any chemicals to be added are environmentally safe and not harmful or corrosive to the facility. Identify the source of water for mixing the drilling fluid. Approvals and permits are required for obtaining water from such sources as streams, rivers, ponds or fire hydrants. Any water source used other than potable water shall require a pH test. Contractor shall be responsible for submitting details to ensure the augering fluids will be sufficiently contained and will not leak to the surrounding floodplain.

MATERIAL ACCEPTANCE:

The Contractor must provide Manufacturer's catalog cuts showing materials meet the Specifications.

The Contractor must provide detailed drawings of all jack and bore pits.

Certification and test reports for the material, manufacturing and test of the casing pipe shall be performed and furnished by the pipe manufacturer in accordance with the latest standards of the industry.

For all installations, submit a jack and bore plan with sufficient information to establish the proposed installation strategy. All plans shall be reviewed and approved prior to starting work. The plan shall include all the following information as applicable:

- a. An indication of where the leading edge of the casing is to be located with respect of the line and grade, and the intervals for checking line and grade during installation. Maintain a record of progress at the job site.
- b. Equipment of adequate size and capability to install the product, and include the equipment manufacturer's information for all power equipment used in the installation.
- c. The means for controlling line and grade.
- d. The means for centering the cutting head inside the borehole.
- e. Provide a means for preventing voids by assuring:
 - i. The rear of the cutting head shall not advance in front of leading edge of the casing by more than 1/3 times the casing diameter, and in stable cohesive soil conditions this distance shall not exceed 8 inches.
 - ii. In unstable conditions such as granular soil, loose or flowable materials, the cutting head is retracted into the casing a distance that permits a balance between pushing pressure, pipe advancement and soil conditions.
- f. Adequate casing lubrication with a bentonite slurry, or other approved technique.
- g. An adequate ban around the leading edge of the casing to provide extra strength in loose unstable materials when the cutting head has been retracted into the casing to reduce skin friction as well as provide a method for the slurry lubricant to coat the outside of the casing.
- h. Water to be injected inside the casing to facilitate spoil removal. The point of injection shall be no closer than 2 feet from the leading edge of the casing.
- i. Means to dewater all jack and bore pits.

HDPE PIPE RIVER CROSSING METHOD: This work consist of, but is not limited to, furnishing all labor, materials and appurtenances necessary to install HDPE watermain and fittings to the

alignment, grade and location shown on the plans. Pipe shall be High-Density Polyethylene (HDPE) water transmission and distribution piping for PE3608 (minimum) pipe. Material, fittings, butt fusion joining and general construction practices shall meet the specifications and requirements of AWWA Standard C906, ASTM F 1962 and NSP Standard-61.

GENERAL REQUIREMENTS:

Polyethylene pipe and fittings shall be made from virgin resins exhibiting a minimum cell classification of 345464C as defined by ASTM D3350 with an established Hydrostatic Design Basis of 1600 psi for water at 73.4°F.

The pipe supplied under this specification shall have a nominal ductile iron pipe size or steel pipe size (DIPS/IPS) outside diameter. The pressure capability shall be as follows:

DR (Dimension Ratio)

9 (maximum)

PC (Pressure Class)

200 psi through 80°F (per AWWA M55, Table 4-2)

Allowable Total Pressure during Recurring Surge

1.5 x PC = 300 psi through 80°F (per AWWA M55, Table 4-4)

Allowable Total Pressure during Occasional Surge

2 x PC = 400 psi through 80°F (per AWWA M55, Table 4-4)

Maximum Hydrotest

1.5 x Design Working Pressure per ASTM F 2164 and per AWWA M55, Chapter 9, Hydrotesting and Commission

Quick-Burst Test*

The minimum hoop stress shall be 2900 psi per ASTM D 1599 and as required in AWWA C906, Section 4.3.6.

* ASTM D 2290 Ring-Tensile Test result (2900 psi per AWWA C906, Section 4.3.5) may be substituted for Quick Burst Test

Pipe and fittings must be marked as prescribed by AWWA C906 and NSF. Pipe markings will include nominal size, OD base (ie: 16" ductile iron pipe sizing, DIPS), dimension ratio, standard material designation code (e.g. PE 3608), pressure class, AWWA-C906, manufacturer's name, manufacturer's production code including day, month, year extruded, and manufacturer's plant and extrusion line, and optional logo of the agency providing test to the requirements of NSF Standard 61.

MJ Adapter Kit with stainless steel stiffener:

The mini-flange of the MJ adapter shall have been designed to provide axial restraint greater than the axial tensile failure strength of the pipe wall and shall have the minimum cell classification as the pipe to which the fitting will be joined. Molded MJ Adapters shall meet ASTM D 3261. Fabricated or machined MJ Adapters shall meet ASTM F 2206.

To maintain gasket pressure as water temperature fluctuates and to resist permanent deformation due to constant radial pressure on the seal, the seal end Inside Diameter of the fitting must be supported by a stainless steel stiffener to prevent diameter reduction.

The fitting assembly shall offer full axial restraint such that when it is bolted to the ductile iron pipe joint, the flow-stream pressure with surges and/or ground movement will neither leak, nor be separated from the metal pipe connection.

The HDPE MJ adapter will be supplied as a kit to include the necessary metal back up ring, the standard rubber gasket, tee-bolts sized to bridge across the mini-flange, and the HDPE adapter itself with the pre-positioned stainless steel stiffener.

This work shall be accomplished according to Sections 20, 21, 22, and 41 of the Standard Specifications for Water and Sewer Construction in Illinois, latest edition and the City of St. Charles Engineering Design and Inspection Policy Manual and shall consist of excavation, bracing, bedding, and cover, pipe joint restraint, trench dewatering, trench backfilling with excavated materials, testing, disinfecting, finish grading, removal and disposal of waste excavated materials, protection, and repair or replacement of existing utilities.

Installation

Pipe shall be stored on clean, level ground to prevent undue scratching or gouging of the pipe. If the pipe must be stacked for storage, such stacking should be in accordance with the pipe manufacturer's recommendations. The pipe should be handled in such a manner that it is not damaged by being dragged over sharp objects or cut by chokers or lifting equipment and per PPI Handbook, Chapter 2, 2nd edition.

Segments of pipe having cuts or gouges in excess of 10% of the wall thickness of the pipe shall be cut out, removed and do not reuse. The undamaged portions of the pipe shall be rejoined using the butt fusion joining method.

Sections of polyethylene pipe should be joined into continuous lengths on the job site above ground by butt fusion. The joining method shall be performed in strict accordance with ASTM F 2620. The butt fusion equipment used in the joining procedure shall be capable of meeting all conditions recommended by the pipe temperature, alignment, and fusion pressure. Heat fusion joining shall be 100% efficient offering a joint weld stretch equal to or greater than the tensile strength of the pipe. Each butt fusion joint, shall be logged electronically, by such equipment as The Datalogger manufactured by McElroy Manufacturing, Inc. Logged fusion joint information shall be printed out and submitted to the engineer.

Fused and other segments of pipe shall be handled so as to avoid damage to the pipe. When lining fused sections of pipe, chains or cable-type chokers should be avoided. Nylon slings are preferred. Care should be exercised to avoid cutting or gouging the pipe.

Prior to beginning work, the Contractor must submit to the Engineer a general work plan outlining the procedure and schedule to be used to execute the project. HDPE pipe shall undergo a period of relaxation after being pulled into place and before connection to any other water main items, in accordance with the manufacturer's specifications. This shall be included in the schedule. Plan should document the thoughtful planning required to successfully complete the project.

Contractor will submit specifications on directional drilling equipment to be used to ensure that the equipment will be adequate to complete the project.

Equipment Requirements

The directional drilling equipment shall consist of a directional drilling rig of sufficient capacity to perform the bore. This includes pullback of the pipe, a drilling fluid mixing and delivery system of sufficient capacity to successfully complete the crossing, a guidance system to accurately guide boring operations and trained and competent personnel to operate the system. All equipment shall be in good, safe, operating condition with sufficient supplies, materials and spare parts on hand to maintain the system in good working order for the duration of this project.

The directional drilling machine shall consist of a hydraulically powered system to rotate, push and pull hollow drill pipe into the ground at a variable angle while delivering a pressurized fluid mixture to a guidable drill (bore) head. The machine shall be anchored to the ground to withstand the pulling, pushing and rotating pressure required to complete the crossing. The hydraulic power system shall be self-contained with sufficient pressure and volume to power drilling operations. Hydraulic systems shall be free of leaks. Rig shall have a system to monitor and record maximum pullback pressure during pullback operations. The rig shall be grounded during drilling and pullback operations.

The drill head shall be steerable by changing its rotation and shall provide the necessary cutting surfaces and drilling fluid jets.

MUD MOTORS (if required): Mud motors (if required) shall be of adequate power to turn the required drilling tools.

The drill pipe shall be constructed of high quality 4130 seamless tubing, grade D or better, with threaded box and pins. Tool joints should be hardened to 32-36 RC.

The guidance system shall be of a proven type and shall be setup and operated by personnel trained and experienced with this system. The Operator shall be aware of any magnetic anomalies and shall consider such influences in the operation of the guidance system if using a magnetic system.

A self-contained, closed, drilling fluid mixing system shall be of sufficient size to mix and deliver drilling fluid composed of bentonite clay, potable water and appropriate additives. Mixing system shall be able to molecularly shear individual bentonite particles from the dry powder to avoid clumping and ensure thorough mixing. The drilling fluid reservoir tank capacity shall be adequate for the planned drilling operation.

Drilling fluid shall be composed of clean water and an appropriate additive. Water shall be from a clean source with a pH of 8.5 – 10. Water of a lower pH or with excessive calcium shall be treated with the appropriate amount of sodium carbonate or equal. The water and additives shall be mixed thoroughly and be absent of any clumps or clods. No hazardous additives may be used. Drilling fluid shall be maintained at a viscosity sufficient to suspend cuttings and maintain the integrity of bore wall.

The mud pumping system must be capable of delivering the drilling fluid at a constant pressure. The delivery system shall have filters in-line to prevent solids from being pumped into the drill pipe. Connections between the pump and drill pipe shall be leak-free. Used drilling fluid and

drilling fluid spilled during drilling operations shall be contained and disposed of properly. A berm, minimum of 12" high, shall be maintained around the drill rigs, drilling fluid mixing system, entry and exit pits and drilling fluid recycling system (if used) to prevent spills into the surrounding environment. Pumps and or vacuum truck(s) of sufficient size shall be in place to convey excess drilling fluid from containment areas to storage facilities.

Pipe rollers, if required, shall be of sufficient size to fully support the weight of the pipe while being hydro-tested and during pullback operations. A sufficient number of rollers shall be used to prevent excess sagging of pipe.

Hydraulic or pneumatic pipe rammers may only be used if necessary and with the authorization of Engineer.

Other devices or utility placement systems for providing horizontal thrust other than those previously defined in the preceding sections shall not be used unless approved by the Engineer prior to commencement of the work. Consideration for approval will be made on an individual basis for each specified location. The proposed device or system will be evaluated prior to approval or rejection on its potential ability to complete the utility placement satisfactorily without undue stoppage and to maintain line and grade within the tolerances prescribed by the particular conditions of the project.

Construction Requirements

The Engineer must be notified 48 hours in advance of starting work. Horizontal drilling shall not begin until the Engineer is present at the job site and agrees that proper preparations for the operation have been made. The Engineer approval for beginning the installation shall in no way relieve the Contractor of the ultimate responsibility for the satisfactory completion of the work as authorized under the Contract. It shall be the responsibility of Engineer to provide inspection personnel at such times as appropriate without causing undue hardship by reason of delay to the Contractor.

All personnel shall be fully trained in their respective duties as part of the directional drilling crew and in safety.

The entire drill path shall be accurately surveyed with entry and exit stakes placed in the appropriate locations within the areas indicated on drawings. If contractor is using a magnetic guidance system, drill path will be surveyed for any surface geomagnetic variations or anomalies.

The contractor shall adhere to all applicable state, federal and local safety regulations and all operations shall be conducted in a safe manner. Safety meetings shall be conducted at least weekly with a written record of attendance and topic submitted to Engineer.

Pipe shall be High Density Polyethylene (HDPE) heat fused per ASTM F 2620. Pipe will be placed on pipe rollers before pulling into bore hole with rollers spaced close enough to prevent excessive sagging of pipe.

A pilot hole shall be drilled on bore path with no deviations greater than 5% of depth over a length of 100'. In the event that pilot does deviate from bore path more than 5% of depth in 100', contractor will notify Engineer and Engineer may require contractor to pull-back and re-drill from the location along bore path before the deviation. In the event that a drilling fluid fracture, inadvertent returns or returns loss occurs during pilot hole drilling operations, contractor shall

cease drilling, wait at least 30 minutes, inject a quantity of drilling fluid with a viscosity exceeding 120 seconds as measured by a March funnel and then wait another 30 minutes. If mud fracture or returns loss continues, contractor will cease operations and notify Engineer. Engineer and contractor will discuss additional options and *work will* then proceed accordingly.

Upon successful completion of pilot hole, contractor will ream borehole to a minimum of 25% greater than outside diameter of pipe using the appropriate tools. Contractor will not attempt to ream at one time more than the drilling equipment and mud system are designed to safely handle.

After successfully reaming bore hole to the required diameter, contractor *will* pull the pipe through the borehole. In front of the pipe will be a swivel. Once pullback operations have commenced, operations must continue without interruption until pipe is completely pulled into borehole. During pullback operations contractor will not apply more than the maximum safe pipe pull force at any time. In the event that pipe becomes stuck, contractor will cease pulling operations to allow any potential hydrolock to subside and will commence pulling operations. If pipe remains stuck, contractor will notify Engineer. Engineer and contractor will discuss options and then work will proceed accordingly.

HDPE pipe shall undergo a period of relaxation after pullback and before connection to any other water main items. The time period shall be in accordance with the manufacturer's specifications.

All directional bores shall be marked with two copper tracer wires. Copper wire shall be 6AWG type RHW-2 or equal and be installed parallel, above and separate from the pipeline. The wire shall be continuous through all valve vaults, etc. Provide compression type splices as necessary. Contractor shall test the locator system, before final payment, for pipeline that is directionally bored.

Contractor shall maintain a daily project log of drilling operations and a guidance system log with a copy given to Engineer at completion of project. Contractor shall certify as-built drawings as to accuracy.

MATERIAL ACCEPTANCE: The Contractor must provide a Manufacturer's catalog cuts showing materials meet the Specification. Contractor must also provide all welder's certifications.

METHOD OF MEASUREMENT: This item will not be measured for payment but will be paid on a lump sum basis. The Contractor will choose one of these two methods for installation.

BASIS OF PAYMENT FOR DUCTILE IRON PIPE IN CASING: This work will be paid for as a lump sum for installation of watermain from Sta. 108+00 to Sta. 122+00 for WATERMAIN SPECIAL. The price of this item will include all fittings, excavation, casing and carrier pipe, spacers, jacking and receiving pits, disposal of existing material, bedding, backfill with sand, any dewatering and/or sheeting or shoring, all necessary permits, fees, bonds, all required pressure testing and disinfection prior to placing the water main in service, thrust restraints, all other work required to complete the watermain installation as specified. The price of these items will include all pipe, fittings, excavation, disposal of existing material, bedding, any dewatering and/or sheeting or shoring, water main encasements in proximity to sewers, pipe bedding and backfill to 12" above top of pipe, all required pressure testing and disinfection prior to placing the water main in service, thrust restraints, and all other work required to complete the water main

installation as specified. Backfilling and compaction of the trench 12" above top of pipe to surface will be paid for separately as TRENCH BACKFILL and TRENCH BACKFILL SPECIAL.

BASIS OF PAYMENT FOR HDPE RIVER CROSSING: This work will be paid for as a lump sum for installation of watermain from Sta. 108+00 to Sta. 122+00 for WATERMAIN SPECIAL. The price of this item will include all fittings, MJ adapters, excavation, HDPE watermain pipe, disposal of existing material, bedding, backfill with sand, any dewatering and/or sheeting or shoring, all necessary permits, fees, bonds, all required pressure testing and disinfection prior to placing the water main in service, thrust restraints, all other work required to complete the watermain installation as specified. Backfilling and compaction of the trench 12" above top of pipe to surface will be paid for separately as TRENCH BACKFILL and TRENCH BACKFILL SPECIAL.

ENGINEER'S FIELD OFFICE, TYPE A (SPECIAL)

This item shall be in accordance with Section 670 of the Standard Specifications, except as modified herein:

Revise the first sentence of the first paragraph of Article 670.02 of the Standard Specifications to read: "Type A field office shall have a ceiling height of not less than 7-feet and not less than 1200 square feet of floor space with a minimum of two separate offices."

Revise Article 670.02 (a) of the Standard Specifications to increase the amount of desk and chairs to 5 each. Chairs shall be non-folding office chairs with upholstered seats and backs and will have wheels.

Revise Article 670.02 (d) of the Standard Specifications to increase the amount of file cabinets to 4 each.

Revise Article 670.02 (e) of the Standard Specifications to read: "6 folding chairs and 2- 36" x 96" folding tables."

Delete Article 670.02 (f) of the Standard Specifications

Revise Article 670.02 (g) of the Standard Specifications to read: "1 office style frostless refrigerator with a minimum size of 19 cubic feet with separate freezer unit."

Revise Article 670.02 (h) of the Standard Specifications to read: "2 electric desk type tape printing calculators and one pocket scientific notation calculator with a 1000 hour battery life or with a portable recharger."

Revise Article 670.02 (i) of the Standard Specifications as follows:

- (1) Internet Connection. An internet service connection using telephone DSL, or cable Broadband. Minimum speeds shall be 10Mbps download and 2Mbps upload. Additionally, a wireless router shall be provided for exclusive use by the Engineer. The router shall be 802.11 b/g/n capable and have a minimum of four (4), gigabit ethernet ports. The Engineer shall approve the service and equipment prior to installation.

- (2) Telephone lines. Three separate telephone lines, including two phone lines and one for a fax machine.
- (3) The office shall be wired with the appropriate number of voice and data jacks to the satisfaction of the Engineer.

Revise Article 670.02 (j) of the Standard Specifications to read: "One plain paper color copier with automatic feed and sorter/stapler (including maintenance agreement, software and all operating supplies). The unit shall be capable of copying field books, 8-1/2" x 11", 8-1/2" x 14" and 11" x 17" size paper. The copier shall have the capability to be networked and be able to scan to e-mail color prints up to 11"x17". The machine shall also be capable of having a minimum 2000 sheet storage tray capacity. The Engineer shall approve the equipment prior to installation."

Revise Article 670.02 (k) of the Standard Specifications to read: "One plain paper fax machine with a maintenance agreement and supplies."

Revise Article 607.02(l) of the Standard Specifications to read: "Four multi-line telephones, and a digital telephone answering machine, for exclusive use by the Engineer."

Revise Article 607.02(m) of the Standard Specifications to read: "One electric water cooler dispenser and water service. The water cooler shall be capable of dispensing both Hot and Cold water from the same unit."

Revise Article 607.02(n) of the Standard Specifications to read: "One first-aid cabinet fully equipped. Ensure the cabinet is readily accessible to project personnel. Check the contents of each kit at least once each week and replenish expended items. Ensure each kit contains, at a minimum, a supply of latex or nitrile gloves, CPR masks, adhesive tape, pressure and cling bandages, antiseptic wipes, bite/sting swabs, cold packs, and safety goggles."

Revise Article 607.02(o) of the Standard Specifications to read: "One microwave oven, 1 cu ft (0.03 cu m) minimum capacity and 1100watts of power."

Revise Article 607.02(p) of the Standard Specifications to read: "One locking fire-proof safe, 0.5 cu ft (0.01 cu m) minimum capacity."

Revise Article 607.02(q) of the Standard Specifications to read: "Automatic start, heavy duty cross-cut paper shredder. The shredder shall be able to receive 8 1/2 inch wide paper and shred a minimum of 15 sheets simultaneously along with CDs and staples."

Revise Article 607.02(r) of the Standard Specifications to read: "One post mounted rain gauge, and mounting hardware, to be located on the project site."

Add the following to Article 670.02 of the Standard Specifications:

- (s) A minimum of weekly cleaning service for the field office.
- (t) Two fire extinguishers.
- (u) Two 4' x 6' dry erase boards with supplies.

(v) A minimum of five waste paper baskets.

(w) The office should have a separate storage room capable of being locked.

(x) Provide a conference table with a minimum size of 10'x4' with 10 chairs.

Revise the first sentence of the first paragraph of Article 670.07 of the Standard Specifications to read: "The building or buildings fully equipped as specified will be paid for on a monthly basis until the building or buildings are released by the Engineer."

Revise the last sentence of the first paragraph of Article 670.07 of the Standard Specifications to read: "This price shall include all utility costs and shall reflect the salvage value of the building or buildings, equipment, and furniture which become the property of the Contractor after release by the Engineer, except that the Department will pay that portion of the monthly long distance and monthly local telephone bills that, when combined, exceed \$150."

Basis of Payment. This work will be paid for at the contract unit price per calendar month for ENGINEER'S FIELD OFFICE, TYPE A (SPECIAL).

WATER MAIN REMOVAL

DESCRIPTION: This work will consist of, but not limited to, furnishing all labor, tools, equipment and material for the removal and disposal of the water main, fittings, valves and vaults as shown on the Plans, specified, or as directed by the Engineer.

GENERAL REQUIREMENTS: Watermain removal consists of excavating, removal of the watermain, fittings, valves, thrust restraints and vaults at locations shown in the plans.

METHOD OF MEASUREMENT: Work under this item will be measured per lineal foot removed.

BASIS OF PAYMENT: This work will be paid for at the contract unit price each for WATERMAIN REMOVAL. The prices of this item will include all equipment, labor, materials and disposal necessary to remove these items.

HOT-MIX ASPHALT SURFACE COURSE, SPECIAL

Description: Hot-mix asphalt (HMA) Surface Course, Special shall be used to pave multi-use trail areas as indicated on the drawings and shall include all labor, materials, tools, and equipment necessary to install a 3" depth HMA Surface Course on a aggregate base course as indicated in the drawings.

Incorporated Specifications: The following specifications are incorporated into the document:

1. Illinois Department of Transportation, Standard Specifications for Road and Bridge Construction, latest revision.

Specific attention is drawn to the following sections:

Section 406-407 Hot-Mix Asphalt Binder and Surface Course

Article 1003.03 Fine Aggregate for Hot-Mix Asphalt
Article 1004.03 Coarse Aggregate for Hot-Mix Asphalt
Article 1011.01 Mineral Filler
Article 1030.01-1030.04 Hot-Mix Asphalt
Section 1032 Bituminous Materials

Contractor shall adhere to the above specifications unless applicable items of work or materials are modified herein.

Quality Assurance:

4. The Contractor is responsible for verifying the quality of the work and shall perform compaction and density tests on request of the Engineer to check compliance with these specifications. A copy of the test reports shall be furnished to the Engineer.
5. The Engineer may require that an independent testing laboratory test imported materials at any time. If the material is found to be non-compliant with the Contract, the Contractor shall bear the cost of testing, removal of all non-compliant materials from the Project Site, and replacement of the materials with materials meeting the requirements of the Contract. If the materials tested are found to be compliant with the requirements of the Contract, the Owner will reimburse the Contractor for costs incurred by testing plus mark-ups as allowed for elsewhere in the Contract.
6. It is the responsibility of the Contractor to verify the accuracy of all survey information prior to commencing excavations or filling operations. Commencement of these operations constitutes acceptance of the survey information as appropriate to meet the intent of the Contract.

Earthwork:

3. Earthwork shall consist of furnishing all labor, materials, tools and equipment necessary to grade the trail in accordance with the drawings. This will at a minimum include rough and finish grading to approved grades, excavation of organic or unstable soils; excavation, stockpiling and redistribution of topsoil; placing and grading supplemental topsoil; hauling away excess material, grading and shaping ditches, and all other grading and excavation operations unless otherwise called for in the plans and specifications.
4. Subgrade shall be prepared in accordance with IDOT SSRBC section 301 and shall be graded to accomplish the proposed lines and levels indicated on the drawings.

Grading:

5. Uniformly grade areas within limits of grading under this section, including adjacent transition areas. Smooth finished surface within specified areas. Compact with uniform levels or slopes between points where elevations are shown, or between such points and existing grades. Finish surfaces free from irregular surface changes.
6. Material Storage: Stockpile satisfactory excavated materials where directed, until required for backfill or fill. Place, grade and shape stockpiles for proper drainage.

7. Locate and retain soil materials away from edge of excavations and drip lines of trees to remain.
8. Dispose of excess soil material and waste materials as herein specified.

Compaction: Subbase shall be compacted in accordance with Section 311 of the Standard Specifications. Control soil compaction during construction providing minimum percentage of density specified for area classification. Do not allow equipment traffic to overly compact areas beyond specified percentages. Remediate over compaction as directed by the Engineer including ripping, regrading and re-compaction or over-excavation and in-kind replacement per plan.

3. Percentage of Maximum Density Requirements: Compact soil to not less than the following percentages for maximum density for soils which exhibit a well-defined moisture density relationship (cohesive soils) determined in accordance with ASTM D1557; and not less than the following percentages of relative density; determined in accordance with ASTM 2049, for soils which will not exhibit a well defined moisture density relationship (cohesionless soils).
4. Moisture Control:
 - a. Where sub-grade or lift of soil material must be moisture conditioned before compaction, uniformly apply water to surface of subgrade, or layer of soil material, to prevent free water appearing on surface during or subsequent to compaction operations.
 - b. Before compaction, moisten or aerate each layer as necessary to provide optimum content. Compact each layer to required percentages of maximum dry density or relative dry density for each area classification.
 - c. Do not perform compaction operations on excessively wetted soils.

Hot Mix Asphalt Surface : Surface course shall be laid only on a base which is dry, primed, and when weather conditions are suitable. Air temperature must be at least 45 degrees Fahrenheit in the shade and the forecast is for rising temperatures.

1. Prime Coat: Bituminous prime material shall be of the type and applied at the rate specified depending on the surface it is applied to:
 - a. Prime on aggregate base: MC-30, 0.30 gallons per square yard.
 - b. Prime on HMA base: RC-70, 0.05 to 0.10 gallons per square yard.
2. Preparation and Transportation of Hot-Mix Asphalt: Work shall be in accordance with Articles 406.05 and 1030.08 of the above referenced and incorporated specifications.
3. Placing and Compacting Hot-Mix Asphalt: Work shall be in accordance with Article 406.07 of the above referenced and incorporated specifications.
4. Surface Tests:

At the discretion of the Engineer the surface courses shall be tested for smoothness with a sixteen (16') foot straight edge after compaction. Straight edge shall be placed parallel to the pavement centerline, parallel to the grade line in each pavement lane, touching the surface. Ordinates shall be measured from the face of the straight edge to surface course.

There shall be deducted from the amount due Contractor the cost of seventy-five (75%) percent of the surface course mixture as measured over the defective area for each variation in the surface course of greater than one-eighth (1/8"), but less than one-half (1/2") inch.

Where the variation in the surface course equals or is in excess of one-half (1/2") inch, the entire area affected shall be removed and replaced with fresh surface course mixture at Contractor's expense.

Method of Measurement: HOT-MIX ASPHALT SURFACE COURSE, SPECIAL will be measured on a Square Yard basis of 3" depth.

Basis of Payment: Payment for HMA Surface Course, Special will be on a square yard basis for 3" depth HOT-MIX ASPHALT SURFACE COURSE, SPECIAL and will include excavation, grading and all work necessary for establishing grades and alignment as indicated on the drawings, prime coat and asphalt joint materials. Aggregate Base Course, Type B will be paid for separately.

FORMLINER TEXTURED SURFACE, SPECIAL

Description: This work shall consist of the construction of textured and colored formed concrete surface using simulated stone masonry molds and color stain system designated to duplicate closely the appearance of natural stone.

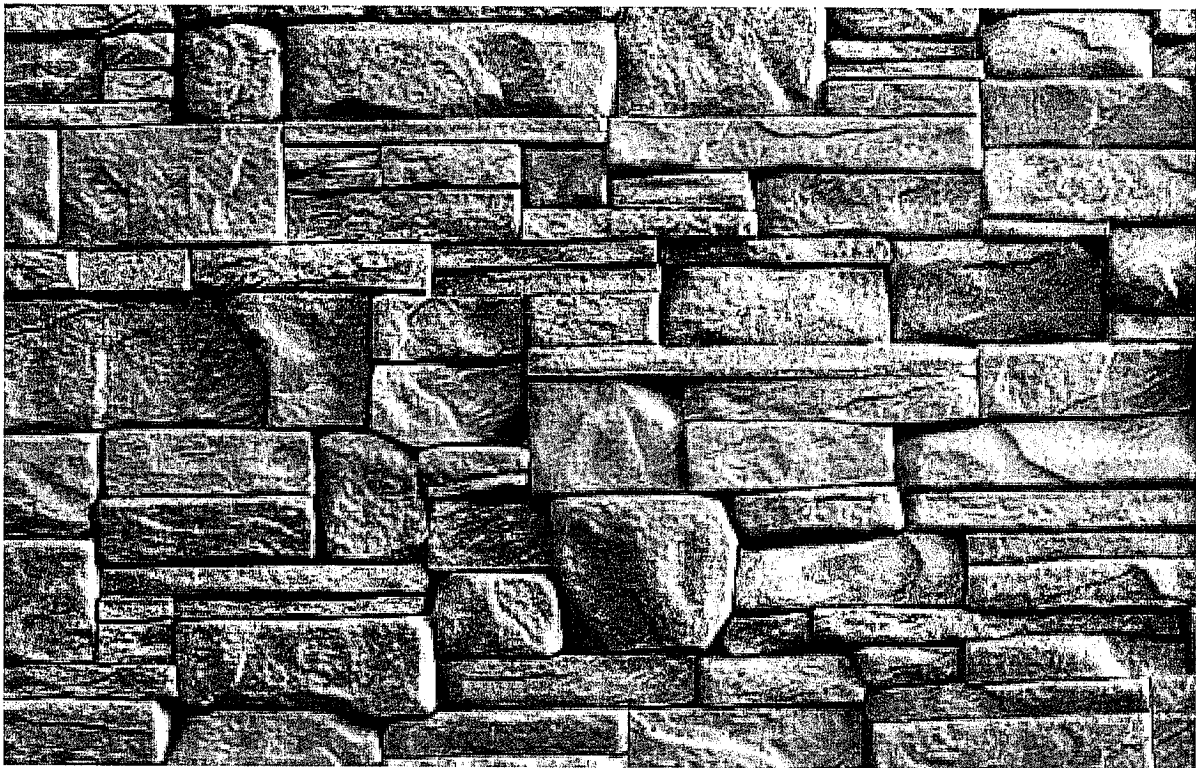
General: Form liners shall be used for the textured concrete surfaces specified on the plans and shall be installed in conformance with the manufacturer's recommendations, unless other methods of forming textured concrete surfaces are approved by the Engineer. Form liners shall be in conformance with this special provision as well as section 503.06(a) of the Standard Specifications. Form liners shall be manufactured from an elastomeric material or a semi-elastomeric polyurethane material by a manufacturer of commercially available concrete form liners. No substitution of other types of form liner material will be allowed. Form liners shall leave crisp, sharp definition of the architectural surface. Recurring textural configurations exhibited by repeating, recognizable shadow patterns shall be prevented by proper casting of form liner patterns. Textured concrete surfaces with such recurring textural configurations shall be reworked to remove such patterns until approved by the Engineer or the concrete shall be replaced.

Cuts and tears in form liners shall be sealed and repaired in conformance with the manufacturer's recommendations. Form liners that are delaminated from the form liner shall not be used. Form liners with deformations to the manufactured surface caused by improper storage practices or any other reason shall not be used. Clean forms and make free of buildup prior to each pour. Molds shall not compress more than 1/4" when concrete is poured at a rate of 10 vertical feet per hour.

Form liners shall extend the full length of texturing with 1'-0" smooth bands at each construction joint as shown on plans. Small pieces of form liners shall not be used. Grooves shall be aligned straight and true. Joints in the direction of grooves in grooved patterns shall be located only in the depressed portion of the textured concrete. Adjoining form liners shall be butted together without distortion, open cracks or offsets at the joints. Joints between liners shall be cleaned before each use to remove any mortar in the joint.

If the form pattern selected has molds connecting through the middle of stones, carefully remove the seam line created by abutting molds. Match the texture and shape of the surrounding stone, avoiding visible seams or mold marks. The form liner pattern shall be Spec Formliners Incorporated Custom Rock Pattern #1548 (shown below) or an equivalent to be submitted to Engineer for approval.

Adhesives shall be compatible with the form liner material and with concrete. Adhesives shall be approved by the form liner manufacturer. Adhesives shall not cause swelling of the form liner material. Form ties shall be made of either metal or fiberglass. Using metal ties, which result in a portion of the tie permanently embedded in the concrete, shall be designed to separate at least 1" back from the finished surface, leaving only a neat hole that can be plugged with patching material. Contractor shall submit the type of form ties to the Engineer for approval prior to use in this work. Place form ties at thinnest points of molds. Neatly patch the remaining hole after disengaging the protruding portion of the tie so that it will not be visible after coloring the concrete surface.



Releasing Form Liners: Products and application procedures for form liner release agents shall be approved by the form liner manufacturer. Release agents shall not cause swelling of the form liner material or delamination of the form liner. Release agents shall not stain the concrete or react with the form liner material. Release agent shall coat form liner with a thin film. Following application of release agent, the form liner surface shall be cleaned of excess amounts of release agent using compressed air. Buildup of release agent caused by reuse of a form liner shall be removed at least every 5 uses.

Form liners shall release without leaving particles or pieces of form liner material on concrete

and without pulling or breaking concrete from the textured surface. The concrete and textured surfaces exposed by removing form liners shall be protected from damage. Form stripping and related construction shall avoid creating defects in the concrete.

All concrete shall be cured in conformance with the Standard Specifications.

Coloration: All patterning of simulated stone masonry shall appear natural and non-repeating. Seam lines and or match lines caused from two or more molds coming together shall not be apparent when viewing final wall. Final coloration of cast stone concrete surface shall accurately simulate the appearance of real stone including the multiple colors, shades, flecking, and veining that is apparent in real stone. It shall also demonstrate the colors that may be apparent from aging, such as staining from oxidation or rusting. Joints shall be colored to simulate real mortar.

Concrete surface shall be cleaned prior to applying color stain materials to assure that surface is free of latency, dirt, dust, grease, efflorescence, paint, or other foreign material, following manufacturer's instructions for surface preparation. Do not sandblast. Preferred method to remove latency is pressure washing with water, minimum 3,000 psi (a rate of three to four gallons per minute), using a fan nozzle perpendicular to and at a distance of one or two feet from surface. Completed surface shall be free of blemishes, discoloration, surface voids, and unnatural form marks.

Color stain shall create a surface finish that is breathable (allowing water vapor transmission), and that resists deterioration from water, acid, alkali, fungi, sunlight, and weathering. Stain mix shall be a waterborne, low V.O.C. material, less than 180 grams / liter. All simulated stone surfaces that are to be stained shall be at least 30 days old. Apply color stain when ambient temperature is between 50 and 100 degrees F. Consult manufacturer and Engineer if conditions differ from this requirement.

Use the following colors from Federal Color Standard 595B for areas of concrete to be stained:

Base color - 33446 (Medium Tan)

Test samples of the stain on concrete shall be submitted for acceptance to the Engineer before any staining is to start on the structure. The stains shall contain an integral silane or siloxane penetrating concrete sealer.

The following products or approved equal may be used to stain the concrete surface:

Tri-Sheen Pigmented Stain
XL 70 Bridge Cote with Silane by Texcote
Custom Rock Stain.by CRI

After coloring has fully cured apply anti-graffiti coating to all formliner surfaces in accordance with Special Provision for ANTI-GRAFFITI PROTECTION SYSTEM. Anti-graffiti coating will be paid for separately.

Submittals: Within 30 days of receiving the general contract, contractor shall submit to the Engineer for approval the following: Catalogue cuts of the proposed liner, including bonding and release agents. Verification Sample Panel. Submit a 2' x 2' sample of the simulated stone masonry finish which demonstrates the finishes, colors, and textures specified. A single product

shall be used for all locations that are to receive the formliner textured surface. Contractor is responsible for ensuring that precast items use the same formliner as the cast-in-place components.

Thirty days prior to starting construction of any form lined surface, provide a mock-up to remain on the site as a basis for comparison of the work constructed on the project. Duplicate in form and appearance (texture, joint dimension, stone size and coloration) all work constructed on the project matching the sample panel. Remove any sample rejected by the Engineer from the project and submit a new sample at no additional expense. The mock-up shall be 4' x 10' x 6" and shall include color staining.

Shop drawing plan, elevation, and details to show overall pattern, joint locations, form tie locations, and end, edge, as well as other special conditions.

Quality Control: Manufacturer of simulated stone masonry molds and custom coloring system shall have a minimum of five years of experience making stone masonry molds and color stains to create formed concrete surfaces to match natural stone shapes, surface textures, and colors.

Contractor shall schedule a pre-installation meeting with manufacturer representative to assure understanding of simulated stone masonry, molds use, color application, requirements for construction mockup, and to coordinate the work.

Formed concrete construction shall require five years experience pouring vertically formed architectural concrete. Manufacturer or manufacturer's authorized representative shall perform the color stain system application.

Method of Measurement: This work will be measured for payment in place and the area computed in square feet. Measurement will include all costs associated with providing the aesthetic treatment including the furnishing, installing, stripping and reusing the form liner as well as all costs for furnishing and applying the color stain system.

Basis of Payment: The work will be paid for at the contract unit price per square foot for FORMLINER TEXTURED SURFACE, (SPECIAL).

PRECAST CONCRETE PYLON TYPE A
PRECAST CONCRETE PYLON TYPE B

Description: The work under this item must consist of providing all labor, materials, tools, and equipment as necessary to manufacture, deliver, and install precast concrete units as shown in the Contract Plans and as herein specified.

General Requirements: Provide the following submittals:

1. Precast Concrete Mix Design: A design mix meeting the following requirements must be submitted for precast items.
 - a. Complete list of materials, including proportions of materials. The mix design must identify the type, brand, source and amount of cement.
 - b. Certificates for fine and coarse aggregate demonstrating compliance with specified requirements.
 - c. Catalog data for admixtures.

- d. Test reports showing that the mix has been successfully tested to produce concrete with the specified strength.
2. Shop Drawings: Shop drawings meeting the following requirements must be submitted for precast items.

Shop drawings showing complete information for fabrication of precast concrete items under the supervision of a qualified professional including, plans, elevations, dimensions and cross sections; manufacturing tolerances; locations, sizes, and types of reinforcement; and the connection of precast elements to the bridge structure. Illustrate recommended means for handling of precast concrete items during loading, off-loading, installing, and storing.

3. Calculations: Provide complete design calculations for the precast concrete items, prepared by a Structural Engineer (S.E.) licensed in the State of Illinois, demonstrating compliance with loading conditions, connection of precast elements to the bridge structure and performance requirements.
4. Design Reference Samples: Submit 3 samples for initial selection approximately 12" square to illustrate quality of finishes, colors, and textures of each surface finish for the Engineer's selection and approval.
 - a. Submit aggregate samples showing full color range for the Engineer's selection.
5. Full-Size Control Samples: Prepare and deliver to the project site one full-size control sample for Owner's inspection, prior to start of production work, and after Owner's review of surface finish samples. Acceptable full-size samples may be incorporated into the job.

Patching of damaged exposed face surfaces may be permitted when acceptable to Engineer. Otherwise, remove and replace damaged units when patching repairs are unacceptable.

6. Product Data: Submit complete instructions for installation of the precast concrete items and include the following information:
 - a. Requirements for lifting and handling of precast units.
 - b. Cleaning instructions, identifying materials and methods.

Quality Control: Comply with quality assurance measures as herein specified:

1. Codes and Standards: Comply with provisions of following codes, specifications and standards except as otherwise indicated.
 - a. American Concrete Institute (ACI) 318 "Building Code Requirements for Reinforced Concrete".
 - b. Concrete Reinforcing Steel Institute, "Manual of Standard Practice".
 - c. Prestressed Concrete Institute PCI MNL 116, "Quality Control for Plants and Production of Precast Prestressed Concrete Products".
 - d. Prestressed Concrete Institute PCI MNL 117, "Manual for Quality Control for Plants and Production of Architectural Precast Concrete Products".
 - e. Prestressed Concrete Institute PCI MNL-120, "PCI Design Handbook-Precast and Prestressed Concrete".
 - f. Prestressed Concrete Institute PCI MNL-122, "Architectural Precast Concrete".
 - g. Prestressed Concrete Institute PCI MNL-123, "Design and Typical Details of Connections for Precast and Prestressed Concrete".
 - h. American Welding Society D1.1, "Structural Welding Code - Steel".

- i. American Welding Society D1.4, "Structural Welding Code – Reinforcing Steel".
2. Structural Engineer's Qualifications: A structural Engineer who is legally authorized to practice in Illinois and who is experienced in providing Engineering services of the kind indicated. Engineering services are defined as those performed for installations of precast concrete units that are similar to that indicated for this Project in material, design, and extent.
3. Manufacturers' Qualifications: Only firms having substantial experience in the manufacture of architectural precast concrete products, similar to units required for this project, and whose facilities are engaged primarily in the manufacture of such products, will be acceptable.

The following listed firms are considered to be acceptable manufacturers of precast concrete units for this project, provided that they comply with the requirements listed below. The use of any other manufacturer must require written permission by the Engineer.

- a. Wausau Tile, Chicago, IL (773) 528-9230
- b. Cary Concrete Products, Cary, IL (847) 639-2303
- c. Edwards Cast Stone Company Dubuque, IA (563) 556-8906
- d. Architectural Cast Stone, West Chicago, IL (630) 377-4800

The selected Manufacturer must have sufficient available production capability to produce, transport, and deliver the specified precast concrete units without causing a delay in the work. The selected Manufacturer must also provide a product quality control system in accordance with PCI MNL 116 and perform concrete and aggregate quality control testing using an approved, independent commercial testing laboratory. Submit test results to the Engineer.

4. Design modifications may be made only as necessary to meet field conditions and to ensure proper fitting of the work, and only as acceptable to the Engineer. Maintain general design concept shown without increasing or decreasing sizes of members or altering profiles and alignment shown. Provide complete design calculations and drawings prepared by the Contractor's licensed Structural Engineer if design modifications are anticipated.

Design and manufacture precast concrete items to meet the performance criteria herein specified.

5. Design precast concrete items in accordance with PCI MNL-120 and PCI MNL-123. Process will be in accordance with Option II (b) of PCI MNL-122 (design by Contractor).
 - a. Design precast concrete items to prevent cracking under the following load conditions:
 - i. Stripping, handling and erection, transporting and storing.
 - ii. Supporting the unit's own weight.
 - b. Minimum Reinforcement: Provide reinforcing bars uniformly distributed in two directions.
6. Provide reinforcing materials as herein specified. Reinforcing materials must be epoxy coated.
 - a. Reinforcing Bars: ASTM A 615, Grade 60, deformed.
 - b. Epoxy-Coated Reinforcing Bars: ASTM A 775.
7. Supports for Reinforcement: Provide supports for reinforcement including bolsters, chairs, spacers and other devices for spacing, supporting and fastening reinforcing.
 - a. Supports not in contact with forms must be stainless steel or epoxy coated.

- b. Where legs of supports are in contact with forms, provide supports which are stainless steel, ASTM A 167, Type 302 or 304.
8. Provide concrete materials as herein specified:
 - a. Portland Cement: ASTM C-150, Type I or Type III.
 - b. Use only one brand, type, and source of supply for each type of cement throughout the project. Use white Portland cement.
 9. Coarse Aggregate: Use acid resistant dolomite or siliceous aggregates only. ASTM C-33 for "Severe Weathering Region"; hard, durable, carefully selected and graded; free of material causing staining or reacting with cement and with less than 5% magnesium sulfate soundness loss unless at least 5 years documented historical experience indicates satisfactory durability.
 10. Fine Aggregate: ASTM C-33; manufactured sand of same material as coarse aggregate, unless otherwise acceptable to the Owner.
 11. Pigments: Non-fading, resistant to lime and other alkalis.
 12. Water: Potable, free from foreign materials in amounts harmful to concrete and embedded steel.
 13. Admixtures: Use amounts as recommended by admixture manufacturer for climatic conditions prevailing at time of placing. Adjust quantities of admixtures as required to maintain quality control. Admixtures which increase cement dispersion, or provide increased workability for low-slump concrete, may be used subject to Engineer's acceptance.
 - a. Air-Entraining Admixture: ASTM C 260, certified by the manufacturer to be compatible with other required admixtures. Use air-entraining admixture in strict compliance with manufacturer's directions. Subject to compliance with requirements, products which may be incorporated in the work include, but are not limited to, or must be approved equal to the following:
 - i. "Air-Mix"; Euclid Chemical Co.
 - ii. "SikaAer"; Sika Corp.
 - iii. "MB-VR" or "MB-AE"; Master Builders.
 - iv. "Darex AEA" or "Daravair"; W.R. Grace.
 - v. "Edoco 2001" or "2002"; Edoco Technical Products.
 - vi. "Air-Tite"; Gifford-Hill/American Admixtures.
 - b. Water-Reducing Admixture: ASTM C 494, Type A, or other type approved for Manufacturer's units. Subject to compliance with requirements, products which may be incorporated in the work include, but are not limited to, or must be approved equal to the following:
 - i. "WRDA Hycol"; W.R. Grace.
 - ii. "PSI N"; Gifford-Hill/American Admixtures.
 - iii. "Eucon WR-75"; Euclid Chemical Co.
 - iv. "Pozzolith Normal"; Master Builders.
 - v. "Plastocrete 160"; Sika Chemical Corp.
 - vi. "Chemtard"; Chem-Masters Corp.
 - vii. "Pro-Kete-N"; Protex Industries, Inc.
 - c. Prohibited Admixtures: Calcium chloride thycyanates or admixtures containing more than 0.1 percent chloride ions are not permitted.

14. Prepare design mix for concrete required and as herein specified.
 - a. Prepare design mixes for each type of concrete required.
 - b. Design mixes may be prepared by independent testing facility or by qualified precast manufacturing plant personnel, at precast Manufacturer's option.
 - c. Proportion mixes by either laboratory trial batch or field experience methods, using materials to be employed on the Project for each type of concrete required, complying with ACI 318.

15. Facing Mix: Provide standard weight concrete consisting of specified portland cement, aggregates, admixtures, and water to produce the following properties:
 - a. Compressive Strength: 5,000 psi (34 474 kPa) minimum at 28 days.
 - b. Total Air Content: Not less than 4 percent nor more than 6 percent.
 - c. Water Absorption: Not to exceed 5 percent to 6 percent by weight, except between 3 percent to 4 percent for sloping surfaces (sills).
 - d. Water/Cement Ratio: 0.40 maximum.

16. Backup Concrete: Provide standard weight concrete with compressive strength of 5000 psi at 28 days.

17. Written Reports: Submit written reports to the Engineer of proposed mix for each type of concrete at least 30 days prior to start of precast unit production. Do not begin concrete production until the Engineer has reviewed mixes and evaluations.

18. Adjustment to Concrete Mixes: Mix design adjustments may be requested when characteristics of materials, job conditions, weather, test results, or other circumstances warrant. Laboratory test data for revised mix designs and strength results must be submitted to and accepted by the Engineer before using in the work.

19. Fabricate products as herein specified:
 - a. Forms: Forms must be a urethane mold liner. The mold must be formed using an actual limestone wall. Post pour grouting or post pour finishing will not be permitted.
 - b. Fabricate precast concrete units complying with manufacturing and testing procedures, quality control recommendations, and the following dimensional tolerances, unless otherwise indicated.
 - c. Dimensional Tolerances of Finished Units: Provide dimensional tolerances as follows:
 - i. Height: Plus 1/8 inch, minus zero
 - ii. Length: Plus or minus 1/8 inch
 - ii. Thickness: Plus 1/4 inch, minus 1/8 inch
 - i. Angular deviation of sides: 1/16 inch maximum
 - iii. Out of square (difference in length of two diagonal measurements): 1/8 inch per 6 feet or 1/4 inch total, whichever is greater.
 - iv. Local smoothness (deviation from a true plane): Plus or minus 0.2 percent.
 - v. Tolerance of other dimensions not otherwise indicated: Numerically greater of plus or minus 1/16 inch per 10 feet, or plus or minus 1/8 inch.

20. Reinforcement Position Tolerance: Within 1/4 inch of position shown on shop drawings, where such positions have structural implications or affect concrete cover; otherwise within plus or minus 1/2 inch.

21. Manufacture units straight, smooth, and true to size and shape, with exposed edges and corners precise and square unless otherwise indicated. Precast units which are warped, cracked, broken, spalled, stained, or otherwise defective will not be acceptable.
22. Built-In Items: Provide holes in units to receive dowels and anchored bolts as indicated.
23. Exposed Surface Finish: Manufacture precast units with smooth surface finishes free of pockets, sand streaks, and honeycombs, with uniform color and texture to match Owner's control sample. Provide a light acid etch finish at surfaces which will be exposed to view in the final installed condition.
24. Unformed Concealed Surfaces: Provide a trowel finish. Level surface with a straightedge, and strike off. After surface water has disappeared, float and trowel surface. Provide smooth finished surface, free of trowel marks, and uniform in texture and appearance.
25. Clean exposed to view surfaces of precast units thoroughly with detergent and water; use a brush to remove foreign matter.
26. Deliver, store, and handle precast concrete units as herein specified.
 - a. Do not deliver precast units until the concrete has attained its design compressive strength.
 - b. Lift and support precast concrete units only at designated lifting or support points as shown on final shop drawings.
 - c. Upon delivery, precast concrete units must be free of defects and damage and must be clean, and uniform in color, to match the Owner's control sample.
 - d. The planter items must be off-loaded, stored, protected, and installed at the project site by the Contractor.
 - b. Deliver wood blocking to the designated location, for use by others, to properly support the planter items above the ground.
27. Comply with performance requirements as herein specified.
 - a. Conduct inspections, perform testing, and make repairs or replace unsatisfactory precast units as required. Limitations as to amount of patching which will be permitted are subject to acceptance of the Engineer.
 - b. In addition to above, delivered precast concrete units may be rejected for any one of the following:
 - i. Damaged during manufacture or delivery.
 - ii. Exposed-to-view surfaces which develop surface finish deficiencies.
 - iii. Other defects as listed in PCI MNL-117.

Method of Measurement: PRECAST CONCRETE PYLON TYPE A and TYPE B will be measured for payment per EACH.

Basis of Payment: The work under this item will be paid for at the contract unit price as shown in the Schedule of Unit Prices for PRECAST CONCRETE PYLON TYPE A and PRECAST CONCRETE PYLON TYPE B which price will include all manufacturing, delivery, off-loading, temporary storage, installation, footings, rebar, connection hardware and all equipment, labor, and materials as shown on the drawings, as specified herein, and as necessary to complete this work.

BRIDGE PYLON FACE LIGHT

Description: Bridge pylon face lighting units shall standard manufactured lighting units with LED light source and of cast and/or fabricated aluminum housing with powder coat finish. The light fixture shall include form insert for casting into concrete. Light fixture shall be coordinated with the fabrication of the precast concrete bridge pylon so that the fixtures can be embedded in the pylon. Light shall be directed down onto the roadway to prevent glare onto passing motorists. Housing shall be sealed to prevent the entry of dust, debris and insects and limit moisture from entering the housing. Conduit and power supply must be coordinated with precast concrete pylon fabrication. Powder coat color finish will be selected by the Engineer.

Submittals: Provide manufacturers technical data and samples for standard colors and finishes.

Performance Requirements:

Bridge Pylon Face Light shall be equal to Bega-US Model 2315LED Recessed Wall Luminaire with asymmetrical distribution. Other manufacturers will be considered meeting the following minimum specifications:

1. Power Requirement: Provided with an 18 W LED module, 21.5 total system watts, -25° C start temperature. Integral 120 V - 277 V electronic LED driver. The LED and driver are mounted on a removable plate for easy replacement. LED color temperature is 3000 K (available in 4000 K and 5000 K; consult factory). Junction temperature is 61.9° C. Through Wiring: Maximum of four (4) No. 12 AWG conductors (plus ground) suitable for 90° C. Two 7/8" knockouts provided for 1/2" conduit.
2. Lumen Output: 1512
3. Listings: UL (2108)
4. Environments: Rated for wet locations (IP65)
5. Housing: Die cast aluminum with integral wiring compartment
6. Enclosure: One piece die cast aluminum faceplate with stepped baffle, 1/4" thick, clear tempered glass. Faceplate is secured by four (4) flush socket head stainless steel captive screws threaded into stainless steel inserts in the housing casting. Continuous high temperature O-ring gasket for weather tight operation

Attic Stock: Provide two (2) additional fully functional bridge pylon face light fixture as attic stock delivered to the City of St. Charles Public Works Department.

Method of Measurement: BRIDGE PYLON FACE LIGHT will be measured in place per EACH unit installed.

Basis of Payment: This work shall be paid for at the contract unit price per EACH for BRIDGE PYLON FACE LIGHT, measured in place, which price shall include all necessary material, equipment and labor to perform the operation as specified herein. Additional fixtures for attic stock will not be paid for separately and will be included in the price for BRIDGE PYLON FACE LIGHT.

BICYCLE RAILING (SPECIAL)
BRIDGE FENCE RAILING (SPECIAL)

Description: Provide metal bridge and boardwalk railing which, when installed, comply with the following minimum requirements for structural performance, unless otherwise indicated.

1. Concentrated load of 200 lbs applied at any point in any direction.
2. Uniform load of 50 lbs per linear foot applied simultaneously in both vertical and horizontal directions.
3. Concentrated and uniform loads above need not be assumed to act concurrently.

Submittals:

1. Product Data: Submit manufacturer's specifications, anchor details and installation instructions for products used in miscellaneous metal fabrications, including paint products.
2. Shop Drawings: Submit shop drawings for fabrication and erection of bridge and boardwalk railing including plans, elevations and details, sections and connections. Show anchorage and accessory items. Provide templates for anchor and bolt installation.
3. Samples: Provide samples of each finish as it will appear in the final product including, but not limited to rail, post, mesh, u-channel and attachment hardware.

Quality Assurance:

1. Codes and Standards: Comply with provisions of following, except as otherwise indicated:
 - a. AWS D1.1 "Structural Welding Code - Steel".
2. Qualifications for Welding Work: Qualify welding processes and welding operators in accordance with AWS "Standard Qualification Procedure".
3. Field Measurements: Take field measurements prior to preparation of shop drawings and fabrication, where possible. Do not delay job progress; allow for trimming and fitting where taking field measurements before fabrication might delay work.
4. Installer Qualifications: Engage an experienced Fabricator and Installer who has at least ten years experience and has completed at least ten (10) similar projects with similar material and scope to that indicated for this Project with a successful construction record of in-service performance.

Steel and Iron: For fabrication of miscellaneous metal work which will be exposed to view, use only materials which are smooth and free of surface blemishes including pitting, seam marks, roller marks, rolled trade names and roughness.

1. Steel Plates, Shapes and Bars: ASTM A-36.
2. Steel Tubing: Cold formed, ASTM A-500; or hot rolled, ASTM A-501.

3. Steel Bars for Gratings: ASTM A-569 or ASTM A-36.
4. Brackets, Flanges and Anchors: Cast or formed metal of the same type material and finish as supported rails, unless otherwise indicated.
5. Woven-Wire Mesh: Intermediate-crimp, square pattern, 2-inch woven-wire mesh, made from 0.188-inch nominal diameter wire complying with ASTM A 510.

Fasteners:

1. Provide zinc-coated fasteners. Select fasteners for the type, grade and class required.
2. Bolts and Nuts: Regular hexagon head type, ASTM A-307, Grade A.
3. Lag Bolts: Square head type, FS EF-B-561.
4. Machine Screws: Cadmium plated steel, FS FF-S-92.
5. Wood Screws: Flat head carbon steel, ES FE-S-III.
6. Anchors: 1/2" adhesive anchor with minimum allowable tension capacity of 4,500 lbs. and 4-1/2" of embedment.
7. Toggle Bolts: Tumble-wing type, ES EF-B-588, type, class and style as required.
8. Washers: Provide washers recommended by fastener manufacturers for applications indicated, as follows:
 - a. Plain Washers: Round, carbon steel, ES FF-W-92.
 - b. Lock Washers: Helical spring type carbon steel, ES FE-W-84.

Fabrication: Use materials of size and thickness indicated and as required producing the strength and durability in finished product for use intended. Work to dimensions indicated or accepted on shop drawings, using proven details of fabrication and support.

1. Form exposed work true to line and level with accurate angles and surfaces and straight sharp edges.
2. Ease exposed edges to a radius of approximately 1/32" unless otherwise indicated. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
3. Shear and punch metals cleanly and accurately. Remove burrs.
4. Remove sharp or rough areas on exposed surfaces.

Connections:

1. Welded Connections: Weld corners and seams continuously, complying with AWS recommendations.
 - a. Select materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - b. Obtain fusion without undercut or overlap.
 - c. Remove welding flux immediately.
 - d. At exposed connections, finish exposed welds and surfaces smooth and blended so that no roughness shows after finishing and contour of welded surface matches those adjacent.
2. Fastener Connections: Form exposed connections with hairline joints, flush and smooth.
 - a. Exposure of Fasteners: Use concealed fasteners wherever possible. Use exposed fasteners of type shown or, if not indicated, tamperproof flat-head (countersunk) screws or bolts.
 - b. Exposure of Fasteners: Not permitted; use concealed fasteners.

Anchorage: Provide for anchorage of type shown, coordinated with supporting structure. Fabricate and space anchoring devices to provide adequate support for intended use.

Shop Assembly: Assemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.

1. Cut, reinforce, drill and tap miscellaneous metal work as required to receive finish hardware, screws, and similar items.
2. Joints: Fabricate in a manner to exclude water or provide weep holes where water may accumulate.

Finish: Bicycle railing (Special) and Bridge Fence Railing (Special) shall have a high quality finish galvanized architectural finish, where possible railing components shall be pre-galvanized before fabrication to provide the best quality possible. If pre-galvanizing is not possible Hot-Dip railing components in accordance with ASTM A 123 and ASTM A 385. Excessive drips, burs, and runs in the galvanized finish will not be accepted.

Preparation: Coordinate and furnish anchorages, setting drawings, diagrams, templates, instructions, and directions for installation of anchorages, such as concrete inserts, sleeves, anchor bolts and miscellaneous items having integral anchors, which are to be embedded in concrete or masonry construction. Coordinate delivery of such items to project site.

Installation:

1. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing metal fabrications to in-place construction; including threaded

fasteners for concrete and masonry inserts, toggle bolts, through-bolts, lag bolts, wood screws and other connectors as required.

2. Cutting, Fitting and Placement: Perform cutting, drilling and fitting required for installation of miscellaneous metal fabrications. Set work accurately in location, alignment and elevation, plumb, level, true and free of rack, measured from established lines and levels.
3. Items Built Into Concrete or Masonry: Provide temporary bracing or anchors in formwork.
4. Fit exposed connections accurately together to form tight hairline joints. Weld connections which are not to be left as exposed joints, but cannot be shop welded because of shipping size limitations. Grind exposed joints smooth and touch-up shop paint coat.
5. Field Welding: Comply with AWS Code for procedures of manual shielded metal-arc welding, appearance and quality of welds made, and methods used in correcting welding work.

Clean and Adjust:

1. Touch-Up Finishing: Immediately after erection, clean field welds, bolted connections, and abraded areas by galvanizing in the field in accordance with ASTM A 780.
2. Clean all fabricated metal items at time of Substantial Completion.

Method of Measurement: BICYCLE RAILING (SPECIAL) and BRIDGE FENCE RAILING (SPECIAL) will be measured per Lineal Foot basis.

Basis of Payment: The work under this item will be paid for at the contract unit price per Lineal Foot for BICYCLE RAILING (SPECIAL) and BRIDGE FENCE RAILING (SPECIAL) which price will include all labor, material, finishing, anchor bolt and bolt installation, equipment, materials and incidental work necessary to complete the work as specified.

BOARDWALK STRUCTURE
BOARDWALK STRUCTURE (SPECIAL)

Description: The Contractor shall provide the design and construction of three timber boardwalk structures. All three boardwalks shall have minimum 12 feet width clear between the rails and be of the length as described below:

1. Boardwalk Structure 1:
Segment 1: station 614+61.1 to 620+38.6
Segment 2: station 620+63.6 to 626+50.0
2. Boardwalk Structure 2: station 1107+38.0 to 1107+70
3. Boardwalk Structure (Special): station 1100+00.0 to 1103+84.2

The construction of all three boardwalks shall be essentially the same with the exception that Boardwalk Structure 1 and Boardwalk Structure 2 shall be constructed on wood timber piles and Boardwalk Structure (Special) shall be constructed on precast concrete piles.

General Requirements: Contractor shall refer to the Standard Specifications Section 507 TIMBER STRUCTURES and Section 512 PILING for materials and construction procedures except as modified herein.

Guardrail: Boardwalk guard rail will be paid for separately. See BICYCLE RAILING (SPECIAL) special provision for requirements.

Boardwalk Contractor: Boardwalk to be designed and constructed by an experienced timber Boardwalk Contractor meeting or exceeding experience and qualifications listed below. The following potential Boardwalk Contractors are examples of acceptably experienced contractors, but are not limited to:

1. York Bridge Concepts
1419 W. Waters Ave., Ste 116
Tampa, FL 33604
1-800-226-4178 x125
2. DFI Bridge Corporation
5055 Babcock Street NE Suite #4
Palm Bay, FL 32905
1-866-727-7100
3. Bridge Builders
310 Terrell Road
Franklin, NC 28734
1-800-847-9403

Other Boardwalk Contractors will be allowed to design and construct the boardwalk structure; however, the Prime Contractor shall submit information on the proposed Boardwalk Contractor's qualifications to document the experience required in the sections below. The Engineer will review the experience and performance credentials of the proposed Boardwalk Contractor and reserves the right to approve or reject the proposed Boardwalk Contractor based on the submitted qualifications. There will be no extra compensation should the Engineer reject the proposed Boardwalk Contractor and a more qualified Boardwalk Contractor must be selected.

Experience: Boardwalk Contractor must have built a minimum of ten (10) similar 10-Ton or higher capacity timber boardwalks utilizing a similar construction method. If other than designated Boardwalk Contractor is proposed, bidder must provide, the names and contact information of at least five (5) references (previous clients) for whom the company has built said boardwalks.

Boardwalk Contractor must have been in business for 6 years or more. Boardwalk Contractor must submit a written statement, attesting to this length of time they have been in the business of designing and constructing timber boardwalks.

Submittals:

1. Project/Client References (min. of 5)
2. Project Experience information (min. of 10 projects)
3. Certification that the Boardwalk Contractor has been in the business of designing and construction of Timber Structures for a minimum of 6 years.
4. The Boardwalk Contractor must provide a statement of insurance/bonding capabilities to attest as to the financial strength of the company. Include the name and rating of each carrier for the following: Corporate insurance, Auto liability insurance, Bonding/Surety Company.
5. Wood preservative treatment certification from the treating facility shall be provided.
6. Engineering specifications, engineered calculations, and engineered construction shop drawings shall be provided detailing, verifying and/or sizing each individual component. The above must contain an embossed seal by a licensed structural engineer who is registered in the state of Illinois. The geotechnical report shall be signed by a licensed Professional Engineer who is registered in the state of Illinois.
7. Specifications for pile-driving equipment and methods, including hammer calculations verifying capacity to drive the piling to required tonnage and criteria for verification of pile capacity.
8. Overview of the proposed construction procedures to document that impacts the surrounding natural areas will be minimized.

Design and Engineering Drawing and Calculations: The Boardwalk Contractor shall be required to submit detailed shop drawings and associated calculations for the proposed Boardwalk Structure and Boardwalk Structure (Special) for review by the Engineer prior to fabrication or ordering of materials. Design and Engineering Drawings and Calculations shall be signed and sealed by a Structural Engineer licensed in the state of Illinois. Preparation of Design and Engineering Drawings and Calculations and Structural Engineer's certification shall be included in the cost of BOARDWALK STRUCTURE and BOARDWALK STRUCTURE (SPECIAL).

Loading Requirements: Pile-supported boardwalk shall be designed for an H10 vehicle load with Impact or GVW or 90 pounds per square foot of pedestrian load, whichever controls. Deflection under pedestrian live load shall be limited to span length divided by 1,000.

Geotechnical Information: A geotechnical report for the vehicular structure and roadway is provided with bid documents and soil borings were taken within the alignment of the proposed boardwalk and boring logs are provided in the drawings. The boardwalk contractor should review this information thoroughly. Should the boardwalk contractor determine that the design of the proposed boardwalk structure will require additional geotechnical analysis the boardwalk contractor shall retain the services of a geotechnical engineer to provide additional borings and investigation as required to install the complete limits of the boardwalk. The additional geotechnical analysis and engineering shall be included in the cost of BOARDWALK STRUCTURE and BOARDWALK STRUCTURE (SPECIAL).

Construction Process: Boardwalk Contractor to provide an overview of the boardwalk construction process, from design to construction, and include a review of the proposed construction method for this project.

Site Access Coordination: The Boardwalk Contractor shall coordinate with the Prime Contractor and Engineer to coordinate access to the site. The cost of any additional haul roads, drives or incidental construction required to construct the bridge/boardwalk structures shall be included in the cost of BOARDWALK STRUCTURE and BOARDWALK STRUCTURE (SPECIAL).

Tree clearing for the proposed boardwalk alignment has been completed in a previous contract. Removal of stumps required for the boardwalk construction shall be included in the cost of BOARDWALK STRUCTURE and BOARDWALK STRUCTURE (SPECIAL). Additional tree removal shall be coordinated with the Kane County Forest Preserve District and the Engineer.

Lumber:

1. Timbers shall be pressure treated southern yellow pine or coastal Douglas Fir, grade 1 or better with a minimum Fc of 1200 psi, and shall conform to AASHTO Standard M 168 for Wood Products.
2. All timber should be select structural material dressed cut S4S (surfaced four sides), except timber decking shall be cut S1S2E with rough face placed upward to improve traction.

Preservative Treatment:

1. All treatments must meet or exceed the standards for treated wood set by the AWPA.
2. All field cuts & drilled holes in lumber or glulams shall be treated in the field with oil-based ready to use Copper Napthenate (Wolman Green Woodlife Copper Care or Copper Care Wood preservatives Tenino Copper Napthenate or equal) in accordance with AWPA specification M4.
3. Chromium Copper Arsenate (CCA) shall not be used. Acceptable alternative treatment formulations include Acid Copper Chromate (ACC) or Alkaline copper Quat (ACQ) in accordance with the American Wood Preservers Association (AWPA) standard P5-90 and A2-88. All lumber and timbers shall be pressure impregnated under AWPA standards C1-90, C2-90, C14-90, and C18-90 where applicable. Piling shall be pressure impregnated under AWPA standards C1-90, C3-90, C14-90 and C18-90 where applicable. Where practical, lumber and timbers shall be kiln dried after treatment to a 19% or less moisture content.

a. Lumber and Timber minimum retention and penetration:

Application	Retention (LB. Oxide/Cu/Ft.)	Penetration
Above ground	.40	2.5" or 85% of Sapwood
Soil contact	.60	2.5" or 85% of Sapwood
Fresh water	.60	2.5" or 85% of Sapwood
Salt splash	.80	2.5" or 85% of Sapwood

b. Piling minimum retention and penetration:

Retention

<u>Application</u>	<u>(LB. Oxide/Cu/Ft.)</u>	<u>Penetration</u>
Land	.60	3.0" or 90% of Sapwood
Fresh Water	.80	3.5" or 90% of Sapwood
Brackish Water	.80-2.50 (depending upon salinity)	3.5" or 90% of Sapwood
Salt Water	2.50	3.5" or 90% of Sapwood

Glue Laminated Beams (Glulams) –Minimum Specifications:

<u>Material:</u> Southern Yellow Pine	<u>Material:</u> Douglas Fir
<u>Treatment:</u> Type C Pentachlorophenol or CCA	<u>Treatment:</u> Type A Pentachlorophenol
<u>Retention:</u> .60 lb./cubic foot	<u>Retention:</u> .60 lb./cubic foot
<u>Adhesive:</u> Waterborne adhesive; laminated after treatment	<u>Adhesive:</u> Waterproof Phenolic Resin; laminated before treatment
<u>Appearance:</u> Industrial Grade	<u>Appearance:</u> Industrial Grade

Glulam girders shall have a standard camber radius of 800' or 1200' unless otherwise specified on the drawings.

Wood Decking: Structural decking shall be heavy timber #1 grade Southern Yellow Pine (minimum) decking attached with heavy-duty lag bolts.

Timber Pilings:

1. All pilings for timber abutment shall meet the requirements as set forth by the American Society for Testing and Materials (ASTM) under the provisions of D25 (latest edition), standard specifications for round timber piles. Final size and number of piles to be designed based on the soils and hydraulic report.
2. Hand auguring and/or water jetting are not permitted for piling installation on this project.
3. All bridge pilings shall be driven. Boardwalk contractor's geotechnical engineer shall approve all required depths and any piles not driven to required depth. A minimum capacity per pile is to be established by the Boardwalk contractor's geotechnical engineer.

Concrete Piles: Precast concrete piles material and construction requirements shall be in accordance with Section 512.03 of the Standard Specifications.

Structural Steel and Other Members:

1. After fabrication, all bolts, plates, angles and brackets (steel shapes) shall be hot dip galvanized per A.A.S.H.T.O. specification M-111 and sized accordingly. Flow rates and geotechnical data supplied in the contract documents should be taken into consideration on sizing.
2. All welding of angles, plates and plates to be per A.W.S. specifications.

3. Stainless steel hardware will be used, when appropriate, under brackish or salt-water conditions. Boardwalk designer is to determine the appropriate use of stainless steel hardware, and shall provide engineered calculations to verify all hardware.
4. Silicone and any other additional sealants will be utilized where applicable to provide additional longevity.

Abutments:

1. Each pile supported boardwalk shall have a standard abutment configuration at each end, minimally consisting of 1 board buried with a 3' total height. Abutments are to have wingwalls that are to extend a minimum 5' beyond each side of the bridge end at a 45° angle. The abutments will minimally consist of an 8" timber butt piling with minimum 3x12 horizontal boards, and will be secured with 3/4" diameter (minimum) A307 hot dipped galvanized hex bolts through both the horizontal and pile. Freespan glulam bridge abutments shall be upgraded if/as necessary at discretion of boardwalk designer.
2. The Boardwalk Contractor may substitute concrete abutments for timber abutments at the Contractor's discretion but at no additional cost. Detailed shop drawings will be required to be submitted for review and approval for concrete abutments.
3. Filter Fabric shall be applied behind abutment walls.

Backfill/Erosion control:

1. Construction of a 5' graded dirt shelf in front of abutment wall prior to Boardwalk Contractor's mobilization, to be performed by the Prime Contractor.
2. Backfill material shall be a clean, well-draining granular soil that allows water to drain readily. Hand compaction techniques shall be utilized during backfill placement.
3. It is the contractor's responsibility to properly select and place backfill materials to prevent overstressing of the wall.
4. Back fill elevation is not to exceed wall elevation within 10' of wall location.
5. Install Special Rip Rap, as noted in related specifications, or other erosion control measures in front of abutments, wing walls and around piles.

Wetlands: Where applicable, all construction equipment is not permitted to touch the wetlands floor. All foot traffic will be contained within six feet from boardwalk path.

Site Cleanup and Disposal:The Contractor shall be responsible for disposal of all scrap and excess material. If material is considered a special or hazardous waste (i.e. related to wood preservatives) then it shall be disposed of in accordance with section 669 of the Standard specifications except the cost of this work shall be included with BOARDWALK STRUCRE or BOARDWALK STRUCTURE SPECIAL.

Load Limit Signage:Boardwalk Contractor is responsible for posting load limiting signs and/or barriers at each end of each boardwalk.

Site Inspection: Engineer and Prime Contractor will inspect and sign off on each boardwalk and/or site both before and after construction.

Method of Measurement: BOARDWALK STRUCTURE and BOARDWALK STRUCTURE (SPECIAL) will be measured for payment in Square Feet.

Basis of Payment: The design and construction of the timber boardwalk will be paid for at the contract price per Square Foot for BOARDWALK STRUCTURE and BOARDWALK STRUCTURE (SPECIAL) at the location shown in the plans. The payment for each boardwalk shall include the cost of all design, materials, equipment, labor and incidentals required for the construction of the boardwalk as specified herein and shown on the plans. The steel railing associated with the timber boardwalk will be paid for separately as BICYCLE RAILING (SPECIAL).

WOOD POST AND RAIL FENCE

Description: The Contractor shall provide the design and construction for a wood post and rail fence at the locations indicated on the drawings and meeting the following design criteria:

1. Uniform load of 50 lbs per linear foot applied simultaneously in both vertical and horizontal directions.

General Requirements: Contractor shall refer to the Standard Specifications Section 507 TIMBER STRUCTURES for materials and construction procedures except as modified herein.

Experience: Wood fencing contractor must have a minimum of five (five) years experience constructing wood fencing of similar scope.

Submittals:

Wood preservative treatment certification from the treating facility shall be provided.

Shop Drawings: The Contractor shall be required to submit detailed shop drawings and associated calculations for the proposed Wood Post and Rail Fence for review by the Engineer prior to fabrication or ordering of materials.

Lumber:

1. Timbers shall be pressure treated southern yellow pine or coastal Douglas Fir, grade 1 or better with a minimum Fc of 1200 psi, and shall conform to AASHTO Standard M 168 for Wood Products.
2. All timber should be select structural material dressed cut S4S (surfaced four sides), except timber decking shall be cut S1S2E with rough face placed upward to improve traction.

Preservative Treatment:

3. All treatments must meet or exceed the standards for treated wood set by the AWP.

4. All field cuts & drilled holes in lumber or glulams shall be treated in the field with oil-based ready to use Copper Napthenate (Wolman Green Woodlife Copper Care or Copper Care Wood preservatives Tenino Copper Napthenate or equal) in accordance with AWPA specification M4.
5. Chromium Copper Arsenate (CCA) shall not be used. Acceptable alternative treatment formulations include Acid Copper Chromate (ACC) or Alkaline copper Quat (ACQ) in accordance with the American Wood Preservers Association (AWPA) standard P5-90 and A2-88. All lumber and timbers shall be pressure impregnated under AWPA standards C1-90, C2-90, C14-90, and C18-90 where applicable.

c. Lumber and Timber minimum retention and penetration:

Application	Retention	
	(LB. Oxide/Cu/Ft.)	Penetration
Above ground	.40	2.5" or 85% of Sapwood
Soil contact	.60	2.5" or 85% of Sapwood
Fresh water	.60	2.5" or 85% of Sapwood
Salt splash	.80	2.5" or 85% of Sapwood

Structural Steel and Other Members:

After fabrication, all bolts, plates, angles and brackets (steel shapes) shall be hot dip galvanized per A.A.S.H.T.O. specification M-111 and sized accordingly.

Site Cleanup: Contractor will clean up each work site daily.

Method of Measurement: WOOD POST AND RAIL FENCE will be measured for payment in Feet.

Basis of Payment: This item of work will be paid for at the contract price per Foot for WOOD POST AND RAIL FENCE at the location shown in the plans and shall include the cost of all materials, equipment, labor and incidentals required for construction.

PLANTING WOODY PLANTS

This work shall be performed in accordance with applicable provisions of the Standard Specifications except as herein modified.

Article 253.01 Description:

Insert the following sentence at the end of the paragraph:

"Disposal of sod and debris (rock, stones, concrete, bottles, plastic bags, etc.) shall be removed from the planting area as specified in Article 202.03."

Article 253.02 Materials:

Delete the following:

"(e) Weed Barrier Fabric Article 1081.14"

Insert the following:

“(f) Planting Soil Backfill Additives.

- A. Hydrophilic Polymers. The type and super-absorbent polymer or hydrophilic compound shall be proposed by the Contractor and receive prior approval from the Engineer. The product shall be designed to retain soil moisture and manufactured for plant use.
- B. Mycorrhizal Inoculants: Endomycorrhizal and/or ectomycorrhizal inoculums appropriate to the tree species shall be proposed by the Contractor and receive prior approval from the Engineer. The product shall be designed for use with the specified plant material.”

“(g) Pre-emergent granular herbicide shall be Snapshot 2.5 TG or approved equal and shall contain the chemicals Trifluralin 2% active ingredient and Isoxaben with 0.5% active ingredient.”

“(h) Watering bags shall be “TreeGatorOriginal®” as manufactured by TreeGator® or approved equal.”

Article 1081.01 Trees, Shrubs, Vines, and Seedlings:

Delete the paragraph under Section 1081.01 (c) (1) and insert the following:

“Inspection and tagging of plant materials at the nursery(s) will be made by the Contractor and shall be in the field (or in storage houses) of the nursery supplying the materials. The Contractor shall schedule an inspection by the Engineer once the tagging is completed. The Engineer or duly authorized representative will review and approve the pre-tagged plants before shipping to the project site, whenever such an examination is deemed practical. Identification seals may be placed on any or all of the plants at the discretion of the Engineer. Approval of pre-tagged planting materials at the nursery will not release the contractor from providing live healthy plants representative of their species at the project location.”

Article 253.07 Layout of Planting:

Insert the following after the second sentence:

“Marking flags shall be 30" height staff with 4" x 5" plastic flagging (type & color), approved by the Engineer.”

Insert the following after the third sentence:

“The Contractor shall provide a representative to assist the Engineer in marking plant locations.”

Article 253.10 Planting Procedures:

Insert the following after the end of the second paragraph.

“Hydrophilic Polymers shall be mixed into a portion of the backfill soil as uniformly as possible. Hydrophilic Polymers shall be applied at a rate and application method in accordance with the manufacturer's specifications. Place a portion of the treated soil into the bottom of the hole, set the plant in place, and fill the remaining treated soil in around the sides of the plant. The top 1-2 inches of the planting hole shall be filled with untreated soil.

“Mycorrhizal Inoculum shall be mixed into the backfill soil as uniformly as possible. Mycorrhizal Inoculum shall be applied at a rate and application method in accordance with the manufacturer's specifications.”

Article 253.11 Mulch Cover:

Delete entire article and insert the following:

“Within three days of planting, four inches deep of dark brown shredded hardwood bark mulch shall be installed in an area approximately 6 feet in diameter around all trees. This area shall be cleared of all foreign material and vegetation. No weed barrier fabric will be required for tree planting.

“Pre-emergent Herbicide will be used instead of weed barrier fabric. The Pre-emergent Herbicide shall be applied prior to mulching and shall be used in accordance with the manufacturer's directions on the package. Apply the granular herbicide using a drop or rotary-type designed to apply granular herbicide or insecticides. Calibrate application equipment to use according to manufacturer's directions. Check frequently to be sure equipment is working properly and distributing granules uniformly.

“Mulch shall not be in contact with the base of the trunk. Submit samples for approval prior to ordering mulch.”

Article 253.13 Bracing:

Delete first sentence of the first paragraph and insert the following:

“Bracing shall be completed by the end of each day, unless otherwise approved by the Engineer. All deciduous and evergreen trees 4 feet (1.2 m) and greater in height shall require three 8 foot (2.5 m) long steel posts so placed that they are equidistant from each other and adjacent to the outside of the ball. Alternative methods of bracing may be proposed by the Contractor but shall require prior written approval from the Engineer.”

Article 253.14 Period of Establishment:

Insert the following after the eighth sentence of the third paragraph:

“Planting areas that do not conform to the performance standards of this Section as determined by the Engineer shall be replaced at no additional cost. Replacement plantings shall follow the procedures and requirements of this Section.”

Article 253.15 Plant Care:

Delete the last sentence of the first paragraph and insert the following:

“The Contractor must prepare and submit a watering plan to the Engineer for approval, for additional watering that is to be conducted during the period of establishment. The watering plan must include sources of water, equipment, logistical information, and projected schedule. The Contractor shall notify the Engineer of the source(s) of water used and provide written certification that the water does not contain chemicals harmful to plant growth. Alternative watering methods may be proposed by the Contractor as part of the watering plan, but must receive prior approval from the Engineer.

“Watering shall be performed at least once every 30 days during the months of May, and September through November, and at least once every 15 days during the months of June through August. Trees shall be watered using watering bags. The normal rates of application for supplemental watering are as follows:

Trees: 15 gallons per tree

“The Engineer may direct the Contractor to adjust the watering rate and frequency depending upon weather conditions. Watering shall be completed in a timely manner.

“The Contractor must notify the Engineer at least 24 hours prior to each watering operation.

“The Contractor shall supply metering equipment needed to assure the specified application rate of water, and the metering equipment shall be approved by the Engineer.”

Insert the following at the end of Article 253.15”

“Dead branches, sucker growth, and broken or objectionable branches must be pruned in accordance with Article 253.09. Dead plants must be removed and properly disposed off-site. Wood mulch must be weeded and replenished on an annual basis to maintain 4 inches (102 mm) depth around woody plants. Plantings that have been growing for one season must have all stakes, wires, tree wrap, and tags removed. Herbicidal spraying may be used to control weed growth. Insecticide spraying may used to eliminate insect infestation. All chemical applications must be conducted in accordance with applicable State and local regulations, by a licensed and trained professional and approved by the Engineer. All debris that results from any of these activities must be removed from the right-of-way at the end of each day.”

SEEDING, CLASS 4A (MODIFIED)
SEEDING, CLASS 5

Description: All work, materials and equipment shall conform to Sections 250 and 1081 of the Standard Specifications except as modified herein. This work includes preparation of seeding bed, materials, seed, delivery and installation, and maintenance of seeded areas as indicated on drawings and specified herein.

Materials: Revise Article 250.07 – Substitute the following:

Seeding, Class 4A (Modified)

SCIENTIFIC	COMMON NAME	LBS/ACRE
AndropogonScoparius	Little Blue Stem	5.0
BoutelouaCurtipendula	Side-Oats Grama	5.0
Elymus Canadensis	Canada Wild Rye	1.0
SporobolusHeterolepsis	Prairie Dropseed	0.5
	Annual Ryegrass	25
	Oats, Spring	25
	Total Weight of Seeds	61.50

Materials:

- (f) Materials References. All relevant materials and work shall comply with applicable sections of the following references unless waived in writing:
 - (1) American Association of Nurserymen, Inc. (AAN) Standard: American Standard for Nursery Stock (ANSI Z60.1-1986).
 - (2) U.S. Dept. of Agriculture, AMS Seed Act, current edition.
 - (3) Hortus Third, Cornell University, 1976.
 - (4) American Joint Committee on Horticultural Nomenclature "Standard Plant Names", second edition, 1942.
 - (5) ASTM: American Society for Testing Materials.
 - (6) Swink, F. and G. Wilhelm. 1994. Plants of the Chicago Region. 4th ed. Indiana Academy of Science. Indianapolis, Indiana
- (g) Procurement. Immediately following contract award, the installing Contractor shall begin seed procurement. During the procurement period, the Contractor shall locate sufficient quantities of specified materials to ensure that the quantities and quality of seed will be available during the specified installation period. Contractor shall provide the Engineer with this information as soon as possible.
- (h) All seed shall comply with and where specified, be tested in accordance with applicable sections of the following:
 - (1) U.S. Department of Agriculture Federal Seed Act, current edition.
 - (2) Acceptance shall be based on receipt and approval of certification covering tests for each seed lot supplied. The Contractor shall be responsible for testing for seed viability using a test acceptable by the Engineer upon receipt of seed from a supplier.
- (i) Source quality control. All seed shall be provided in the supplier's sealed containers labeled in accordance with the Illinois Seed Law.
- (j) Native seed shall be from a native genotype of plant with its genetic origin from northeastern Illinois (as defined by Swink and Wilhelm).
- (k) Native landscape seed mix shall be stratified prior to a spring sowing.
- (l) Substitutions. Any substitutions must be approved in writing by the Engineer following proof of non-availability and proposal for use of equivalent material. For proof of non-availability, submit a list of sources queried.

Submittals: Prior to beginning work, the Contractor shall submit the following information to the Engineer for review and approval:

- (a) Qualification Data. The work of this section shall be performed by a qualified contractor specializing in non-native species weed control, native seeding, and maintenance procedures for native species.
 - (1) Contractor shall have a minimum of five years experience in seeding and maintaining similar projects.
 - (2) Contractor shall be licensed for the application of herbicides according to

applicable law.

- (3) Contractor completing the work described in this section must submit documentation of prior experience and expertise in this type of work.
 - (4) Contractor must submit a minimum of three references, including contact names and phone numbers, who can verify these qualifications.
 - (5) Work described in this section may not begin until these qualifications have been approved.
- (b) Product Data: For each type of product indicated.
- (c) Seed: Within two (2) weeks following notification to proceed, submit for approval to the Engineer a written description of the seed mixes indicating the following:
- (1) Name, address, and phone number of each seed supplier.
 - (2) Estimated seed per pound (or seed per ounce) of each species.
- (d) For delivery, storage, and handling documentation, record and submit the following:
- (1) Date of receipt of seed.
 - (2) Date of receipt of seed test results.
 - (3) Vendor's invoice for each shipment of seed material shall show botanical name, common name, quantities by species and composition of each mixture.
- (e) Certificates:
- (1) Certification of Seed: From seed vendor for each seed mixture stating the botanical and common name, geographic origin and harvest date of each species, date tested, percentage by weight of each species and variety, and percentage of purity, germination, and weed seed. Include the year of production and date of packaging.
 - (2) For each type of manufactured product, signed by product manufacturer, and complying with the following:
 - a. Manufacturer's certified analysis for standard products.
 - b. Analysis of other materials by a recognized laboratory made according to methods established by the Association of Official Analytical Chemists, where applicable.
- (f) Planting Schedule. Schedule for work to be completed shall be submitted to the Engineer indicating anticipated installation dates for seeding.

Pre-installation Conference. Conduct pre-installation conference at Project site attended by the Contractor, Seeding Contractor and Engineer, prior to beginning any seeding work.

Delivery, Storage, and Handling. Contractor shall be responsible for the guarding and safekeeping of all seed material prior to installation.

- (a) Deliver seed in original sealed, labeled, and undamaged containers, in accordance with standard commercial practice.
- (b) All seed shall be kept dry and protected from temperature extremes to maintain dormancy and viability while in transit, storage, and during installation operations.

- (c) Shipping shall be scheduled to minimize on site storage of seed. Deliver seed material after preparations for seeding have been completed and install immediately. If it is necessary to store seed material after arrival to the project site, it shall be stored in an approved cool, dry, waterproof building in such a manner as to protect the seeds from deterioration and to permit easy access for inspection.
- (d) Seed shall be inspected upon arrival at the project site for conformity to species and quality. Seed that is wet, moldy, or bears a test date five (5) months or older shall be rejected.
- (e) Packaged materials. Deliver packaged materials in original, unopened containers, showing weight, analysis and name of manufacturer. During shipment and storage on site, protect materials from breakage, moisture, heat or other damage.

Installation Seasons and Conditions: Contractor shall prep and install native landscapes during the first available growing season. Consult the Engineer for a detailed construction schedule that indicates the timeframes during which all seeding must be completed. Coordinate seeding periods with maintenance periods to provide required maintenance from date of Substantial Completion. The following outlines the recommended installation timeframe provided the construction schedule is completed on a timely basis.

If special conditions exist which warrant installation outside these proposed seeding timeframes, submit a written request to the Engineer describing conditions and stating the proposed variance. If approved, the installation contractor may be responsible for the supplemental watering at a frequency and duration for proper vegetation establishment and development.

Project Site Conditions.

1. Prior to beginning work, the contractor shall examine and verify the acceptability of the project site and notify the Engineer in writing of unsatisfactory conditions. Do not proceed with any work until unsatisfactory conditions have been corrected or resolved in writing with the Engineer.
2. Where seeding occurs in close proximity to other site improvements, adequate protections shall be given to all features prior to commencement of work. Any items damaged during seeding operations shall be promptly repaired to their original condition at no cost.
3. Contractor shall have all underground utilities located by servicing agencies prior to beginning work. In the vicinity of utilities, hand excavate to minimize possibility of damage to underground utilities.

Weather Limitations: Proceed with seeding only when existing and forecasted weather conditions permit. Do not seed when weather conditions are unfavorable such as during high winds, or extremely wet, dry, or muddy conditions. When conditions detrimental to plant growth are encountered such as adverse drainage conditions or obstructions, notify the Engineer prior to planting.

Coordination with Other Work: Proceed with and complete work as rapidly as portions of project site become available working within the seasonal limitations for each kind of work required.

Approval and Selection of Materials and Work. The selection of all materials and the execution of all operations required under the specifications and drawings are subject to the approval of the Engineer. The Engineer has the right to reject any and all materials and any and all work, which, in their opinion, does not meet the requirements of the contract documents at any stage of the operations. The contractor shall remove rejected work and/or material from job site and replace promptly.

Seeding Class 4A (Modified) and Seeding Class 5: Reference drawings and coordinate with Engineer for placement of Seeding Class 4A (Modified) and Seeding Class 5 seed mix. A cover crop shall be incorporated into the mix at the time of seeding as specified. For fall dormant seeding, cover crop applications rates shall be doubled.

- (a) Seed shall be fresh, clean, dry new-crop seed provided in original sealed packages bearing the producer's guaranteed analysis for purity, germination, hard seed, and weed seed content.
- (b) Seed mixtures shall be proportioned by weight in PLS (Pure Live Seed) for graminoid species. Mixing of the individual varieties of seed to form such mixtures shall be performed under the supervision of the Engineer or shall be completed by the seed supplier, who shall provide documentation of the percentage of each species used to form the mix.
- (c) Seed that shall be installed for a spring sowing shall be stratified.

Equipment and Calibration:

- (a) All equipment shall be inspected and approved by the Engineer.
- (b) Prior to start of work, calibrate all equipment to the satisfaction of the Engineer. Recalibration during seeding may be requested by the Engineer.

Approved Equipment Types:

- (a) No-till equipment shall be in good repair and adjustable to control tillage depth and seeding rate.
- (b) Use no-till seeding equipment specifically designed to uniformly plant highly diverse mixture of native grasses and forbs (for example a Truax no-till drill). The device shall lightly roll the seed bed to provide good contact between the seed and the soil. Contractor may submit plan to hand broadcast and rake seed if conditions are not suitable for a drill. The Engineer has the prerogative to accept, review, or modify the proposed plans.

Layout:

- (a) For all native seed application refer to plan documents for planting zone locations. Flag and review areas to be seeded with Engineer prior to installation. The contractor shall supply all equipment, materials, and items necessary for clear layout according to the plans. Review course of action with Engineer prior to proceeding with this part.
- (b) The Engineer reserves the right to adjust layout to meet field conditions without additional cost to the owner.

Seed Bed Preparation:

- (a) Un-graded Seed Bed Preparation: Area(s) unaltered or undisturbed by excavating, grading, or surface soil stripping operations, prepare surface soil as follows:
 - (1) Remove existing herbaceous cover. Do not mix into surface soil.
 - (2) Loosen surface soil to a depth of at least of 6 inches.
 - (3) Remove sticks, roots, trash, and other extraneous matter larger than 1 inch in any dimension.
 - (4) Legally dispose of waste material, including grass, vegetation, and turf off Owner's property.
- (b) Graded Planting Bed Preparation Areas: altered or disturbed by excavating, grading, or surface soil stripping operations, prepare planting bed as follows:
 - (1) Limit seed bed preparation to areas to be seeded. Do not begin naturalized landscape installation until finished grades have been approved and conditions are deemed acceptable by the Engineer.
 - (2) Fine grade planting area to a smooth, uniform surface plane with loose, uniformly fine texture. Grade to within plus/minus 1 inch of finish elevation. Lightly roll and rake area, remove ridges, and fill depressions to meet finish grades.
 - (3) Remove from native landscape planting zones foreign objects larger than 1 inch in any dimension and sticks, roots, rubbish, and other extraneous matter.

Seeding Class 4A (Modified) and Seeding Class 5 Installation:

- (a) Herbicide bed at least twice at two week intervals prior to final seedbed preparation. Seeding shall occur no less than 14 days after herbicide application.
- (b) Immediately prior to seeding, scarify, loosen, float and drag upper two to three inches of topsoil to a loose, uniform condition.
- (c) Uniformly seed all areas with seed mixes at their designated rates.
- (d) All areas shall be seeded in at least two directions or with equipment that drops seed randomly rather than in rows. Seed cover shall be 1/4 inch.

Establishment Period: Maintain all seeded naturalized landscape areas to develop a healthy stand of plantings and guard against defects including death, disease or infestation, and unsatisfactory growth, except for defects resulting from incidents that are beyond Contractor's control.

Period of establishment for Native Seeding covered under this section shall begin upon completion of seeding and mulching work and continue until September of the current year.

- (a) Substantial Completion: Notify the Engineer in writing of the completion of exterior seeding.
 - (1) Within 10 days after notification of completion of work, the Engineer will inspect the work and prepare a Notice of Substantial Completion, along with a list of items that require completion or correction.
 - (2) Issuance of the "Notice of Substantial Completion" shall constitute the start of the Establishment Period for any portion accepted.

- (3) Periodic inspections will be made from time to time by the Engineer to review the quality and progress of the work. Work found to be unacceptable must be corrected within 15 calendar days.

(b) Maintenance During the Establishment Period:

- (1) Begin maintenance immediately after each area is seeded and continue until final acceptance and approval by the Engineer at the end of the Establishment Period. Submit dated time sheets of maintenance operations to Engineer.
- (2) Naturalized Landscape Seeding Areas: Maintain for the maintenance period as per Work Plan procedures to establish healthy, viable plantings. Coordinate with Engineer for application of herbicide insecticide, fungicide, fertilizer, etc.
 - a. Do not let weedy volunteer species exceed 10% of total ground cover unless a different rate is agreed to in writing prior to contract award.
 - b. Mowing heights and dates should be adjusted to maximize weed control and minimize damage to native prairie species. For areas not accessible with mowing equipment, areas shall be cut with a string trimmer or equivalent.
 - c. Mow one time during the Establishment Period to control weeds.
 - d. During the maintenance period, hand weed, cut and/or use of appropriate herbicide (by licensed applicator) a sufficient number of times to keep weeds from setting seed and keep seeded areas looking neat. Mowing should be used to control annual and biannual weeds whereas herbicide application and/or hand weeding will be necessary to control perennial weeds.
 - e. Hand pulling should include the removal of all aboveground and belowground stems, roots, and flower masses prior to the development of seeds. Care should be taken to disturb as little soil as possible during hand pulling to avoid exposure of additional weed seed in the soil layer, and protect adjacent emerging seedlings.
 - f. Submit dated time sheets of required maintenance operations to Engineer.

(c) Performance Standards: At the end of the Establishment Period the following performance standards shall be met:

- (1) There shall be no bare spots greater than one-half (0.5) square meter; ground cover shall consist of no less than 60% coverage of seeded and native, non-weedy species. There shall be no solid stands of non-native vegetation or native weedy vegetation of more than one half (1/2) square meter within all native seeded areas as covered under this Section.
- (2) 50% of the seeded species within each corresponding native planting zones shall be alive and growing in a healthy condition at the end of the specified maintenance period.

(d) Replacements:

- (1) Replacement seeding operations shall be in accordance with the original plans and specifications. Seeded areas that do not conform to the performance standards of this Section as determined by the Engineer shall be reseeded at no additional cost. Reseeding shall follow the procedures and requirements of this Section.
- (e) Final Acceptance Inspection. The final inspection of all exterior seeding will be made by the Engineer. Before final acceptance shall be made, the terms of the maintenance performance requirements shall be met and all plantings are viable and vigorous, free of insects and diseases, firmly rooted and reflect industry standards of appearance. If the maintenance performance requirements are met, the work will be accepted. If not accepted and the work is deemed by the Engineer to be an installation failure, the contractor shall reseed the appropriate zones at no additional cost.

Method of Measurement: The work for SEEDING CLASS 4A (MODIFIED), and SEEDING CLASS 5 will be measured for payment in Acres.

Basis of Payment: The work for SEEDING CLASS 4A (MODIFIED), and SEEDING CLASS 5 will be paid for at the contract unit price per Acre installed, including all labor, materials, maintenance and equipment. Topsoil and soil erosion blanket will be paid for separately.

ELECTRIC CABLE IN CONDUIT NO. 20 3/C, TWISTED SHIELDED

Description: This work shall consist of furnishing and installing an electric cable of the type, size, and number of conductors specified for use in the emergency vehicle priority system.

General: Furnishing and installing the cable shall be in accordance with Article 873 and Article 1076.04 of the Standard Specifications for Road and Bridge Construction and the District 1 Traffic Signal Specifications, revised January 1, 2012. It is the contractor's responsibility to ensure that the cable is compatible with the emergency vehicle priority system of the municipality or fire district and the installation of the cable is in accordance with the emergency vehicle priority system's manufacturer requirements.

Method of Measurement: Electric cable will be measured for payment in feet in place. The length of measurement shall be the distance horizontally and vertically measured between the changes in direction, including cables in mast arms, mast arm poles, signal posts and extra cable length as specified in Article 873.03. The vertical cable length shall be measured according to the schedule provided in Article 873.05

Basis of Payment: This work will be paid for at the contract unit price per foot for ELECTRIC CABLE IN CONDUIT NO. 20 3/C, TWISTED SHIELDED.

CLAY LINER

Description: This work consists of providing suitable material obtained from locations furnished by the Contractor, transporting the material to the jobsite, and placing the material at the location shown on the plans and in the manner described within this specification. The clay liner will be 2' thick.

Requirements:

A. References:

- ASSHTO T-99 (Method C)
- ASTM D 2487 – Classification of Soils for Engineering Purposes
- ASTM D 2922 – Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
- ASTM D 4318 – Liquid Limit, Plastic Limit, and Plasticity Index of Soils

B. Materials:

Clay Pond Liner shall be excavated clay material classified as CL according to ASTM D 2487 and free of organic matter and debris which might cause settlement. The clay shall have a liquid limit of less than 45% and a plasticity index less than 25% as defined by ASTM D 4318.

C. Placing Material:

Begin placement of the clay liner at low points and spread uniformly in approximately horizontal layers not exceeding 6 inches in thickness before compaction. Shape clay liner to conform to details in plans.

To minimize saturation of newly constructed clay liner, seal the clay liner with smooth wheeled equipment at the end of each work day. Before the placement of the next clay layer over the previously sealed area, scarify the surface to insure bonding.

Protect exposed clay liner from drying, erosion or frost, or recompact any areas disturbed by drying, erosion, or frost.

After spreading, thoroughly manipulate each layer by plowing, disking, or other approved methods, to the full depth of the layer being placed to assure uniform density and moisture distribution for proper compaction.

The moisture content for the clay liner should be within 3% of optimum on the high side during placement.

Suspend earthwork operations whenever satisfactory results cannot be obtained because of rain, freezing or other conditions. Do not place the clay liner on saturated or frozen surfaces.

D. Compaction:

Compact the clay liner to 90% of maximum dry density in accordance with ASSHTO T99 (Method C) or as determined by the Engineer. Tests will be according to ASTM D 2922.

The roller being used must be able to readily remold soil clods into a new homogenous mass. Soil clods must be destroyed and lifts must be properly bonded. The lift should be thin enough so that the roller feet penetrate sufficiently and thoroughly remold the soil. The roller shall make enough passes to ensure that all of the lift is remolded.

The clay liner shall be compacted to the satisfaction of the Engineer.

Method of Measurement: Clay Liner will be measured for payment in place and the area computed in cubic feet.

Basis of Payment: This work will be paid for at the contract unit price per cubic foot for CLAY LINER.

VIBRATION TESTING ALLOWANCE

Description. This special provision establishes a budgetary allowance for vibration testing and potential remediation of the cable stay bridge (SN 045-6020) for vibration induced by pedestrian movements which must be addressed after the structure is completed.

The work to be completed under this item will be as directed by the Engineer. This item will provide a line item against which payment will be made since the scope cannot be determined at the time of bidding.

Method of Measurement. This item will be not measured for payment.

Basis of Payment. Payment for this work will be made as specified in the Standard Specifications Article 109.04 using a Force Account basis. Payment for this work will not exceed the costs incurred by the contractor and approved by the Engineer.

FLOOD MITIGATION ALLOWANCE

Description. This special provision establishes a budgetary allowance for mitigation of potential impacts to the project as a result water levels in excess of the 10 year floodwater elevation of 690.98 for a period of greater than 96 hours.

The work to be completed under this item will be as directed by the Engineer. This item will provide a line item against which payment will be made since the scope cannot be determined at the time of bidding.

Method of Measurement. This item will be not measured for payment.

Basis of Payment. Payment for this work will be made as specified in the Standard Specifications Article 109.04 using a Force Account basis. Payment for this work will not exceed the costs incurred by the contractor and approved by the Engineer.

CONCRETE WASHOUT BASINS

Description: Concrete washout basins are used to contain concrete liquids when the chutes of concrete trucks are rinsed out after delivery of concrete to the construction site. These washout facilities function to consolidate solids for disposal and prevent runoff liquids associated with concrete. Details of the construction of the non portable facilities are included in the plans as "temporary concrete washout facilities". Failure to comply with appropriate washout location requirements will result in monetary deficiency deduction against the contractor.

General Requirements:

- The contractor must submit a plan of his/her proposed temporary concrete washout facility to the resident engineer for his/her approval at least 10 days prior to the first concrete pour.
- Temporary concrete washout facilities are to be in place before any delivery of concrete to the construction site.
- Temporary concrete washout facilities are to be located at least 50 feet from storm drain inlets, open drainage facilities, or water bodies. Each facility is to be located away from construction traffic or access areas to prevent disturbance or tracking.
- A sign is to be installed adjacent to each temporary concrete washout facility to inform concrete equipment operators of the designated washout facility.

DESIGN:

Two types of temporary concrete washouts are available for use on the project, in accordance with details provided in the contract plans:

- Prefabricated Portable Facilities
 - Various products are now being marketed specifically for this purpose.
- Non-Portable Facilities – see details
 - Above Grade
 - Constructed using a barrier wall and polyethylene sheeting.
 - Barrier walls are constructed to create a berm, then lined with a single sheet of 10-mil. Polyethylene sheeting, which is free of holes, tears, or other defects which may compromise the impermeability of the material. Sandbags are used to hold the sheeting in place on top of the berm.
 - Sheeting must extend over entire basin and berm to prevent escape of discharge.
 - Below Grade
 - Constructed via excavation and the use of polyethylene sheeting and sandbags.
 - A pit is first excavated in a designated location and then lined with a single sheet of 10-mil polyethylene sheeting which is free of holes, tears, or other defects, which may compromise the impermeability of the material.
 - Sandbags are then to hold the sheeting in place.

SIZE OF WASHOUTS:

- The number and size of each washout facility is to be determined by the contractor. It is his/her responsibility to provide enough storage for the excess concrete and water produced on the target.
- Non-portable facilities are to have a minimum length and width of 10'.

INSPECTION/MAINTENANCE/REMOVAL:

- Temporary concrete washout facilities are to be inspected by the resident engineer during his/her weekly erosion and sediment control inspection, after a storm event of ½" or greater and at the end of any day when concrete has been poured on the construction site. The inspector is to ensure that there are no leaks, no spills, and that the facilities' capacity has not yet been compromised.
- Any overflowing of the washout facilities onto the ground must be cleaned up and removed within 24 hours of discovery.
- If a rain or snow event is forecasted, a non-collapsing, non-water collecting cover shall be placed over the washout facility and secured to prevent accumulation and overflow of precipitation.
- Contents of each concrete washout facility are not to exceed 75% of its designed capacity. If the contents reach 75% capacity, discontinue pouring concrete into the facility until it has

been cleaned out.

- Allow slurry to evaporate or remove the site in a safe manner (i.e., vacuum truck). All hardened material can then be removed and disposed of properly.
- If a lined basin is used, immediately replace the liner if it becomes damaged.
- Remove temporary concrete washout facilities when they are no longer needed and restore the disturbed areas to their original condition.
- Note the locations of temporary concrete washout facilities and any changes to these facilities on the SWPPP.

Basis of Payment: The work shall not be paid for separately, and shall be included in the price for the various items of concrete work in the project.

CONDUIT, FLEXIBLE NON-METALLIC, WEATHERPROOF, 1" DIAMETER

Description. This work shall consist of furnishing and installing a flexible, non-metallic raceway as shown on the plans and as directed by the Engineer between the deck mounted junction box and the pier mounted junction box.

MATERIALS. Materials shall be according to the Article 1088.01(4) of the Standard Specifications.

Method of Measurement. This item will be measured for payment, in place.

Basis of Payment. This work will be paid for at the contract unit price per foot for CONDUIT, FLEXIBLE NON-METALLIC, WEATHERPROOF, 1" DIAMETER.

TRAFFIC SIGNAL SPECIFICATIONS

Effective: May 22, 2002

Revised: January 1, 2012

These Traffic Signal Special Provisions and the "District One Standard Traffic Signal Design Details" supplement the requirements of the State of Illinois "Standard Specifications for Road and Bridge Construction." The intent of these Special Provisions is to prescribe the materials and construction methods commonly used for traffic signal installations. All material furnished shall be new. The locations and the details of all installations shall be as indicated on the Plans or as directed by the Engineer. Traffic signal construction and maintenance work shall be performed by personnel holding IMSA Traffic Signal Technician Level II certification. The work to be done under this contract consists of furnishing and installing all traffic signal work as specified in the Plans and as specified herein in a manner acceptable and approved by the Engineer.

SECTION 720 SIGNING

MAST ARM SIGN PANELS

Add the following to Article 720.02 of the Standard Specifications:

Signs attached to poles or posts (such as mast arm signs) shall have mounting brackets and sign channels which are equal to and completely interchangeable with those used by the District Sign Shops. Signfix Aluminum Channel Framing System is currently recommended, but other brands of mounting hardware are acceptable based upon the Department's approval.

DIVISION 800 ELECTRICAL

SUBMITTALS.

Revise Article 801.05 of the Standard Specifications to read:

All material approval requests shall be submitted in accordance with the District's current Electrical Product Data and Documentation Submittal Guidelines.

General requirements include:

1. Material approval requests shall be made at the preconstruction meeting, including major traffic signal items listed in the table in Article 801.05. Material or equipment which is similar or identical shall be the product of the same manufacturer, unless necessary for system continuity. Traffic signal materials and equipment shall bear the U.L. label whenever such labeling is available.
2. Product data and shop drawings shall be assembled by pay item and separated from other pay item submittals. Only the top sheet of each pay item submittal will be stamped by the Department with the review status, except shop drawings for mast arm pole assemblies and the like will be stamped with the review status on each sheet.
3. Partial or incomplete submittals will be returned without review.
4. Certain non-standard mast arm poles and structures will require additional review from IDOT's Central Office. Examples include ornamental/decorative

- and non-standard length mast arm pole assemblies. The Contractor shall account for the additional review time in his schedule.
5. The contract number or permit number, project location/limits and corresponding pay code number must be on each sheet of correspondence,, catalog cuts and mast arm poles and assemblies drawings.
 6. Where certifications and/or warranties are specified, the information submitted for approval shall include certifications and warranties. Certifications involving inspections, and/or tests of material shall be complete with all test data, dates, and times.
 7. After the Engineer reviews the submittals for conformance with the design concept of the project, the Engineer will stamp the drawings indicating their status as 'Approved', 'Approved-As-Noted', 'Disapproved', or 'Incomplete'. Since the Engineer's review is for conformance with the design concept only, it is the Contractor's responsibility to coordinate the various items into a working system as specified. The Contractor shall not be relieved from responsibility for errors or omissions in the shop, working, layout drawings, or other documents by the Department's approval thereof. The Contractor must still be in full compliance with contract and specification requirements.
 8. All submitted items reviewed and marked 'APPROVED AS NOTED', 'DISAPPROVED', or 'INCOMPLETE' are to be resubmitted in their entirety, unless otherwise indicated within the submittal comments, with a disposition of previous comments to verify contract compliance at no additional cost to the contract.
 9. Exceptions to and deviations from the requirements of the Contract Documents will not be allowed. It is the Contractor's responsibility to note any deviations from Contract requirements at the time of submittal and to make any requests for deviations in writing to the Engineer. In general, substitutions will not be acceptable. Requests for substitutions must demonstrate that the proposed substitution is superior to the material or equipment required by the Contract Documents. No exceptions, deviations or substitutions will be permitted without the approval of the Engineer.

INSPECTION OF ELECTRICAL SYSTEMS.

Add the following to Article 801.10 of the Standard Specifications:

- (c) All cabinets including temporary traffic signal cabinets shall be assembled by an approved equipment supplier in District One. The Department reserves the right to request any controller and cabinet to be tested at the equipment supplier facilities prior to field installation, at no extra cost to this contract.

MAINTENANCE AND RESPONSIBILITY.

Revise Article 801.11 of the Standard Specifications to read:

- a. Existing traffic signal installations and/or any electrical facilities at all or various locations may be altered or reconstructed totally or partially as part of the work on this Contract. The Contractor is hereby advised that all traffic control equipment, presently installed at these locations, may be the property of the

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State of Illinois, Department of Transportation, Division of Highways, County, Private Developer, or the Municipality in which they are located. Once the Contractor has begun any work on any portion of the project, all traffic signals within the limits of this contract or those which have the item "Maintenance of Existing Traffic Signal Installation," "Temporary Traffic Signal Installation(s)" and/or "Maintenance of Existing Flashing Beacon Installation," shall become the full responsibility of the Contractor. Automatic Traffic Enforcement equipment is not owned by the State and the Contractor shall not be responsible for maintaining it during construction. The Contractor shall supply the Engineer, Area Traffic Signal Maintenance and Operations Engineer, IDOT ComCenter and the Department's Electrical Maintenance Contractor with two 24-hour emergency contact names and telephone numbers.

- b. When the project has a pay item for "Maintenance of Existing Traffic Signal Installation," "Temporary Traffic Signal Installation(s)" and/or "Maintenance of Existing Flashing Beacon Installation," the Contractor must notify both the Area Traffic Signal Maintenance and Operations Engineer at (847) 705-4424 and the Department's Electrical Maintenance Contractor, of their intent to begin any physical construction work on the Contract or any portion thereof. This notification must be made a minimum of seven (7) working days prior to the start of construction to allow sufficient time for inspection of the existing traffic signal installation(s) and transfer of maintenance to the Contractor. If work is started prior to an inspection, maintenance of the traffic signal installation(s) will be transferred to the Contractor without an inspection. The Contractor will become responsible for repairing or replacing all equipment that is not operating properly or is damaged at no cost to the owner of the traffic signal. Final repairs or replacement of damaged equipment must meet the approval of the Engineer prior to or at the time of final inspection otherwise the traffic signal installation will not be accepted.
- c. Contracts such as pavement grinding or patching which result in the destruction of traffic signal loops do not require maintenance transfer, but require a notification of intent to work and an inspection. A minimum of seven (7) working days prior to the loop removal, the Contractor shall notify the Area Traffic Signal Maintenance and Operations Engineer at (847) 705-4424 and the Department's Electrical Maintenance Contractor, at which time arrangements will be made to adjust the traffic controller timing to compensate for the absence of detection. Damaged Automatic Traffic Enforcement equipment, including cameras, detectors, or other peripheral equipment, shall be replaced by others, per Permit agreement, at no cost to the contract. See additional requirements in these specifications under Inductive Loop Detector.
- d. The Contractor is advised that the existing and/or temporary traffic signal installation must remain in operation during all construction stages, except for the most essential down time. Any shutdown of the traffic signal installation, which exceeds fifteen (15) minutes, must have prior approval of the Engineer. Approval to shutdown the traffic signal installation will only be granted during the period extending from 10:00 a.m. to 3:00 p.m. on weekdays. Shutdowns shall not be allowed during inclement weather or holiday periods.

- e. The Contractor shall be fully responsible for the safe and efficient operation of the traffic signals. Any inquiry, complaint or request by the Department, the Department's Electrical Maintenance Contractor or the public, shall be investigated and repairs begun within one hour. Failure to provide this service will result in liquidated damages of \$500 per day per occurrence. In addition, the Department reserves the right to assign any work not completed within this timeframe to the Electrical Maintenance Contractor. All costs associated to repair this uncompleted work shall be the responsibility of the Contractor. Failure to pay these costs to the Electrical Maintenance Contractor within one month after the incident will result in additional liquidated damages of \$500 per month per occurrence. Unpaid bills will be deducted from the cost of the Contract. The District's Electrical Maintenance Contractor may inspect any signaling device on the Department's highway system at any time without notification.

- f. Any proposed activity in the vicinity of a highway-rail grade crossing must adhere to the guidelines set forth in the current edition of the Manual on Uniform Traffic Control Devices (MUTCD) regarding work in temporary traffic control zones in the vicinity of highway-rail grade crossings which states that lane restrictions, flagging, or other operations shall not create conditions where vehicles can be queued across the railroad tracks. If the queuing of vehicles across the tracks cannot be avoided, a uniformed law enforcement officer or flagger shall be provided at the crossing to prevent vehicles from stopping on the tracks, even if automatic warning devices are in place.

DAMAGE TO TRAFFIC SIGNAL SYSTEM.

Add the following to Article 801.12(b) of the Standard Specifications to read:

Any traffic signal control equipment damaged or not operating properly from any cause whatsoever shall be replaced with new equipment meeting current District One traffic signal specifications and provided by the Contractor at no additional cost to the Contract and/or owner of the traffic signal system, all as approved by the Engineer. Final replacement of damaged equipment must meet the approval of the Engineer prior to or at the time of final inspection otherwise the traffic signal installation will not be accepted. Cable splices outside the controller cabinet shall not be allowed.

Automatic Traffic Enforcement equipment, such as Red Light Enforcement cameras, detectors, and peripheral equipment, damaged or not operating properly from any cause whatsoever, shall be the responsibility of the municipality or the Automatic Traffic Enforcement company per Permit agreement.

TRAFFIC SIGNAL INSPECTION (TURN-ON).

Revise Article 801.15(b) of the Standard Specifications to read:

It is the intent to have all electric work completed and equipment field tested by the vendor prior to the Department's "turn-on" field inspection. If in the event the Engineer determines work is not complete and the inspection will require more than two (2) hours to complete, the inspection shall be canceled and the Contractor will be required to reschedule at another date. The

maintenance of the traffic signals will not be accepted until all punch list work is corrected and re-inspected.

When the road is open to traffic, except as otherwise provided in Section 850 of the Standard Specifications, the Contractor may request a turn-on and inspection of the completed traffic signal installation at each separate location. This request must be made to the Area Traffic Signal Maintenance and Operations Engineer at (847) 705-4424 a minimum of seven (7) working days prior to the time of the requested inspection. The Department will not grant a field inspection until notification is provided from the Contractor that the equipment has been field tested and the intersection is operating according to Contract requirements. The Department's facsimile number is (847) 705-4089. The Contractor must invite local fire department personnel to the turn-on when Emergency Vehicle Preemption (EVP) is included in the project. When the contract includes the item RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM, OPTIMIZE TRAFFIC SIGNAL SYSTEM, or TEMPORARY TRAFFIC SIGNAL TIMINGS, the Contractor must notify the SCAT Consultant of the turn-on/detour implementation schedule, as well as stage changes and phase changes during construction.

The Contractor must have all traffic signal work completed and the electrical service installation connected by the utility company prior to requesting an inspection and turn-on of the traffic signal installation. The Contractor shall be responsible to provide a police officer to direct traffic at the time of testing.

The Contractor shall provide a representative from the control equipment vendor's office to attend the traffic signal inspection for both permanent and temporary traffic signal turn-ons. Upon demonstration that the signals are operating and all work is completed in accordance with the Contract and to the satisfaction of the Engineer, the Engineer will then allow the signals to be placed in continuous operation. The Agency that is responsible for the maintenance of each traffic signal installation will assume the maintenance upon successful completion of this inspection.

The District requires the following from the Contractor at traffic signal turn-ons.

1. One set of signal plans of record with field revisions marked in red ink.
2. Written notification from the Contractor and the equipment vendor of satisfactory field testing.
3. A knowledgeable representative of the controller equipment supplier shall be required at the traffic signal turn-on. The representative shall be knowledgeable of the cabinet design and controller functions.
4. A copy of the approved material letter.
5. One (1) copy of the operation and service manuals of the signal controller and associated control equipment.
6. Five (5) copies 11" x 17" (280 mm X 430 mm) of the cabinet wiring diagrams.
7. The controller manufacturer shall supply a printed form, not to exceed 11" x 17" (280 mm X 430 mm) for recording the traffic signal controller's timings; backup timings; coordination splits, offsets, and cycles; TBC Time of Day, Week and Year Programs; Traffic Responsive Program, Detector Phase Assignment, Type and Detector Switching; and any other functions programmable from the keyboard. The form shall include a location, date, manufacturer's name, controller model and software version. The form shall be approved by the Engineer and a minimum of three (3) copies must be furnished at each turn-on. The manufacturer must provide all programming information used within the controller at the time of turn-on.

8. All manufacturer and contractor warranties and guarantees required by Article 801.14.

Acceptance of the traffic signal equipment by the Department shall be based upon inspection results at the traffic signal "turn on." If approved, traffic signal acceptance shall be verbal at the "turn on" inspection followed by written correspondence from the Engineer. The Contractor shall be responsible for all traffic signal equipment and associated maintenance thereof until Departmental acceptance is granted.

All equipment and/or parts to keep the traffic signal installation operating shall be furnished by the Contractor. No spare traffic signal equipment is available from the Department.

All punch list work shall be completed within two (2) weeks after the final inspection. The Contractor shall notify the Electrical Maintenance Contractor to inspect all punch list work. Failure to meet these time constraints shall result in liquidated damage charges of \$500 per month per incident.

All cost of work and materials required to comply with the above requirements shall be included in the pay item bid prices, under which the subject materials and signal equipment are paid, and no additional compensation will be allowed. Materials and signal equipment not complying with the above requirements shall be subject to removal and disposal at the Contractor's expense.

RECORD DRAWINGS

The requirements listed for Electrical Installation shall apply for Traffic Signal Installations in Article 801.16. Revise the 2nd paragraph of Article 801.16 of the Standard Specifications to read:

- a. "When the work is complete, and seven days before the request for a final inspection, the full-size set of contract drawings. Stamped "RECORD DRAWINGS", shall be submitted to the Engineer for review and approval and shall be stamped with the date and the signature of the Contractor's supervising Engineer or electrician. The record drawings shall be submitted in PDF format on CDROM as well as hardcopy for review and approval.
- b. In addition to the record drawings, copies of the final catalog cuts which have been Approved or Approved as Noted shall be submitted in PDF format along with the record drawings. The PDF files shall clearly indicate the pay item either by filename or PDF Table of Contents referencing the respective pay item number for multi-item PDF files. Specific part or model numbers of items which have been selected shall be clearly visible."
- c. Additional requirements are listed in the District's Electrical Product Data and Documentation Guidelines.

Add the following to Article 801.16 of the Standard Specifications:

"In addition to the specified record drawings, the Contactor shall record GPS coordinates of the following traffic signal components being installed, modified or being affected in other ways by this contract:

- All Mast Arm Poles and Posts
- Handholes
- Conduit roadway crossings
- Controller Cabinets
- Communication Cabinets
- Electric Service Disconnect locations
- CCTV Camera installations
- Fiber Optic Splice Locations

Datum to be used shall be North American 1983.

Data shall be provided electronically and in print form. The electronic format shall be compatible with MS Excel. Latitude and Longitude shall be in decimal degrees with a minimum of 6 decimal places. Each coordinate shall have the following information:

1. Description of item
2. Designation or approximate station if the item is undesignated
3. Latitude
4. Longitude

Examples:

Description	Designation	Latitude	Longitude
Mast Arm Pole Assembly (dual, combo, etc)	MP (SW, NW, SE or NE corner)	41.580493	-87.793378
FO mainline splice handhole	HHL-ST31	41.558532	-87.792571
Handhole	HH	41.765532	-87.543571
Electric Service	Elec Srv	41.602248	-87.794053
Conduit crossing	SB IL83 to EB I290 ramp SIDE A	41.584593	-87.793378
PTZ Camera	PTZ	41.584600	-87.793432
Signal Post	Post	41.558532	-87.792571
Controller Cabinet	CC	41.651848	-87.762053
Master Controller Cabinet	MCC	41.580493	-87.793378
Communication Cabinet	ComC	41.558532	-87.789771
Fiber splice connection	Toil Plaza34	41.606928	-87.794053

Prior to the collection of data, the contractor shall provide a sample data collection of at least six data points of known locations to be reviewed and verified by the Engineer to be accurate within 100 feet. Upon verification, data collection can begin. Data collection can be made as construction progresses, or can be collected after all items are installed. If the data is unacceptable the contractor shall make corrections to the data collection equipment and or process and submit the data for review and approval as specified.

Accuracy. Data collected is to be mapping grade. A handheld mapping grade GPS device shall be used for the data collection. The receiver shall support differential correction and data shall have a minimum 5 meter accuracy after post processing.

GPS receivers integrated into cellular communication devices, recreational and automotive GPS devices are not acceptable.

The GPS shall be the product of an established major GPS manufacturer having been in the business for a minimum of 6 years.”

Delete the last sentence of the 3rd paragraph of Article 801.16.

LOCATING UNDERGROUND FACILITIES.

Revise Section 803 to the Standard Specifications to read:

If this Contract requires the services of an Electrical Contractor, the Contractor shall be responsible at his/her own expense for locating existing IDOT electrical facilities prior to performing any work. If this Contract does not require the services of an Electrical Contractor, the Contractor may request one free locate for existing IDOT electrical facilities from the District One Electrical Maintenance Contractor prior to the start of any work. Additional requests may be at the expense of the Contractor. The location of underground traffic facilities does not relieve the Contractor of their responsibility to repair any facilities damaged during construction at their expense.

The exact location of all utilities shall be field verified by the Contractor before the installation of any components of the traffic signal system. For locations of utilities, locally owned equipment, and leased enforcement camera system facilities, the local Counties or Municipalities may need to be contacted: in the City of Chicago contact Digger at (312) 744-7000 and for all other locations contact J.U.L.I.E. at 1-800-892-0123 or 811.

RESTORATION OF WORK AREA.

Add the following article to Section 801 of the Standard Specifications:

801.17 Restoration of work area. Restoration of the traffic signal work area shall be included in the related pay items such as foundation, conduit, handhole, trench and backfill, underground raceways, etc. All roadway surfaces such as shoulders, medians, sidewalks, pavement, etc. shall be replaced in kind. All damage to mowed lawns shall be replaced with an approved sod, and all damage to unmowed fields shall be seeded. All brick pavers disturbed in the work area shall be restored to their original configuration as directed by the Engineer. All damaged brick pavers shall be replaced with a comparable material approved by the Engineer. Restoration of the work area shall be included in the contract without any extra compensation allowed to the Contractor.

ELECTRIC SERVICE INSTALLATION.

Revise Section 805 of the Standard Specifications to read:

Description.

This work shall consist of all materials and labor required to install, modify, or extend the electric service installation. All installations shall meet the requirements of the details in the “District One Standard Traffic Signal Design Details” and applicable portions of the Specifications.

General.

The electric service installation shall be the electric service disconnecting means and it shall be identified as suitable for use as service equipment.

The electric utility contact information is noted on the plans and represents the current information at the time of contract preparation. The Contractor must request in writing for service and/or service modification within 10 days of contract award and must follow-up with the electric utility to assure all necessary documents and payment are received by the utility. The Contractor shall forward copies of all correspondence between the contractor and utility company to the Engineer and Area Traffic Signal Maintenance and Operations Engineer. The service agreement and sketch shall be submitted for signature to the IDOT's Traffic Operations Programs Engineer.

Materials.

- a. General. The completed control panel shall be constructed in accordance with UL Std. 508A, Industrial Control Panel, and carry the UL label. Wire terminations shall be UL listed.
- b. Enclosures.
 1. Pole Mounted Cabinet. The cabinet shall be UL 50, NEMA Type 4X, unfinished single door design, fabricated from minimum 0.080-inch (2.03 mm) thick Type 5052 H-32 aluminum. Seams shall be continuous welded and ground smooth. Stainless steel screws and clamps shall secure the cover and assure a watertight seal. The cover shall be removable by pulling the continuous stainless steel hinge pin. The cabinet shall have an oil-resistant gasket and a lock kit shall be provided with an internal O-ring in the locking mechanism assuring a watertight and dust-tight seal. The cabinet shall be sized to adequately house all required components with extra space for arrangement and termination of wiring. A minimum size of 14-inches (350 mm) high, 9-inches (225 mm) wide and 8-inches (200 mm) in depth is required. The cabinet shall be channel mounted to a wooden utility pole using assemblies recommended by the manufacturer.
 2. Ground Mounted Cabinet. The cabinet shall be UL 50, NEMA Type 3R unfinished single door design with back panel. The cabinet shall be fabricated from Type 5052 H-32 aluminum with the frame and door 0.125-inch (3.175 mm) thick, the top 0.250-inch (6.350 mm) thick and the bottom 0.500-inch (12.70 mm) thick. Seams shall be continuous welded and ground smooth. The door and door opening shall be double flanged. The door shall be approximately 80% of the front surface, with a full length tamperproof stainless steel .075-inch (1.91 mm) thick hinge bolted to the cabinet with stainless steel carriage bolts and nylocks nuts. The locking mechanism shall be slam-latch type with a keyhole cover. The cabinet shall be sized to adequately house all required components with extra space for arrangement and termination of wiring. A minimum size of 40-inches (1000 mm) high, 16-inches (400 mm) wide and 15-inches (375 mm) in depth is required. The cabinet shall be mounted upon a square Type A concrete foundation as indicated on the plans. The foundation is paid for separately.
- c. Surge Protector. Overvoltage protection, with LED indicator, shall be provided for the 120 volt load circuit by the means MOV and thermal fusing technology. The

response time shall be <5n seconds and operate within a range of -40C to +85C. The surge protector shall be UL 1449 Listed.

- d. Circuit Breakers. Circuit breakers shall be standard UL listed molded case, thermal-magnetic bolt-on type circuit breakers with trip free indicating handles. 120 volt circuit breakers shall have an interrupting rating of not less than 65,000 rms symmetrical amperes. Unless otherwise indicated, the main disconnect circuit breaker for the traffic signal controller shall be rated 60 amperes, 120 V and the auxiliary circuit breakers shall be rated 10 amperes, 120 V.
- e. Fuses, Fuseholders and Power Indicating Light. Fuses shall be small-dimensional cylindrical fuses of the dual element time-delay type. The fuses shall be rated for 600 V AC and shall have a UL listed interrupting rating of not less than 10,000 rms symmetrical amperes at rated voltage. The power indicating light shall be LED type with a green colored lens and shall be energized when electric utility power is present.
- f. Ground and Neutral Bus Bars. A single copper ground and neutral bus bar, mounted on the equipment panel shall be provided. Ground and neutral conductors shall be separated on the bus bar. Compression lugs, plus 2 spare lugs, shall be sized to accommodate the cables with the heads of the connector screws painted green for ground connections and white for neutral connections.
- g. Utility Services Connection. The Contractor shall notify the Utility Company marketing representative a minimum of 30 working days prior to the anticipated date of hook-up. This 30 day advance notification will begin only after the Utility Company marketing representative has received service charge payments from the Contractor. Prior to contacting the Utility Company marketing representative for service connection, the service installation controller cabinet and cable must be installed for inspection by the Utility Company.
- h. Ground Rod. Ground rods shall be copper-clad steel, a minimum of 10 feet (3.0m) in length, and 3/4 inch (20mm) in diameter. Ground rod resistance measurements to ground shall be 25 ohms or less. If necessary additional rods shall be installed to meet resistance requirements at no additional cost to the contract.

Installation.

- a. General. The Contractor shall confirm the orientation of the traffic service installation and its door side with the engineer, prior to installation. All conduit entrances into the service installation shall be sealed with a pliable waterproof material.
- b. Pole Mounted. Brackets designed for pole mounting shall be used. All mounting hardware shall be stainless steel. Mounting height shall be as noted on the plans or as directed by the Engineer.
- c. Ground Mounted. The service installation shall be mounted plumb and level on the foundation and fastened to the anchor bolts with hot-dipped galvanized or stainless steel nuts and washers. The space between the bottom of the enclosure and the top of the foundation shall be caulked at the base with silicone.

Basis of Payment.

The service installation shall be paid for at the contract unit price each for SERVICE INSTALLATION of the type specified which shall be payment in full for furnishing and installing the service installation complete. The CONCRETE FOUNDATION, TYPE A, which includes the ground rod, shall be paid for separately. SERVICE INSTALLATION, POLE MOUNTED shall include the 3/4 inch (20mm) grounding conduit, ground rod, and pole mount assembly. Any charges by the utility companies shall be approved by the engineer and paid for as an addition to the contract according to Article 109.05 of the Standard Specifications.

GROUNDING OF TRAFFIC SIGNAL SYSTEMS.

Revise Section 806 of the Standard Specifications to read:

General.

All traffic signal systems, equipment and appurtenances shall be properly grounded in strict conformance with the NEC. See IDOT District One Traffic Signal detail plan sheets for additional information.

The grounding electrode system shall include a ground rod installed with each traffic signal controller concrete foundation and all mast arm and post concrete foundations. An additional ground rod will be required at locations where measured resistance exceeds 25 ohms. Ground rods are included in the applicable concrete foundation or service installation pay item and will not be paid for separately.

Testing shall be according to Article 801.13 (a) (4) and (5).

- (a) The grounded conductor (neutral conductor) shall be white color coded. This conductor shall be bonded to the equipment grounding conductor only at the Electric Service Installation. All power cables shall include one neutral conductor of the same size.
- (b) The equipment grounding conductor shall be green color coded. The following is in addition to Article 801.04 of the Standard Specifications.
 - 1. Equipment grounding conductors shall be bonded to the grounded conductor (neutral conductor) only at the Electric Service Installation. The equipment grounding conductor is paid for separately and shall be continuous. The Earth shall not be used as the equipment grounding conductor.
 - 2. Equipment grounding conductors shall be bonded, using a Listed grounding connector, to all traffic signal mast arm poles, traffic signal posts, pedestrian posts, pull boxes, handhole frames and covers, conduits, and other metallic enclosures throughout the traffic signal wiring system, except where noted herein. Bonding shall be made with a splice and pigtail connection, using a sized compression type copper sleeve, sealant tape, and heat-shrinkable cap. A Listed electrical joint compound shall be applied to all conductors' terminations, connector threads and contact points. Conduit grounding bushings shall be installed at all conduit terminations.
 - 3. All metallic and non-metallic raceways containing traffic signal circuit runs shall have a continuous equipment grounding conductor, except raceways containing only detector loop lead-in circuits, circuits under 50 volts and/or fiber optic cable will not be required to include an equipment grounding conductor.

4. Individual conductor splices in handholes shall be soldered and sealed with heat shrink. When necessary to maintain effective equipment grounding, a full cable heat shrink shall be provided over individual conductor heat shrinks.
- (c) The grounding electrode conductor shall be similar to the equipment grounding conductor in color coding (green) and size. The grounding electrode conductor is used to connect the ground rod to the equipment grounding conductor and is bonded to ground rods via exothermic welding, listed pressure connectors, listed clamps or other approved listed means.

GROUNDING EXISTING HANDHOLE FRAME AND COVER.

Description.

This work shall consist of all materials and labor required to bond the equipment grounding conductor to the existing handhole frame and handhole cover. All installations shall meet the requirements of the details in the "District One Standard Traffic Signal Design Details," and applicable portions of the Standard Specifications and these specifications.

The equipment grounding conductor shall be bonded to the handhole frame and to the handhole cover. Two (2) ½-inch diameter x 1 ¼-inch long hex-head stainless steel bolts, spaced 1.75-inches apart center-to-center shall be fully welded to the frame and to the cover to accommodate a heavy duty Listed grounding compression terminal (Burndy type YGHA or approved equal). The grounding compression terminal shall be secured to the bolts with stainless steel split-lock washers and nylon-insert locknuts.

Welding preparation for the stainless steel bolt hex-head to the frame and to the cover shall include thoroughly cleaning the contact and weldment area of all rust, dirt and contaminates. The Contractor shall assure a solid strong weld. The welds shall be smooth and thoroughly cleaned of flux and spatter. The grounding installation shall not affect the proper seating of the cover when closed.

The grounding cable shall be paid for separately.

Method of Measurement.

Units measured for payment will be counted on a per handhole basis, regardless of the type of handhole and its location.

Basis of Payment.

This work shall be paid for at the contract unit price each for GROUNDING EXISTING HANDHOLE FRAME AND COVER which shall be payment in full for grounding the handhole complete.

COILABLE NON-METALLIC CONDUIT.

Description.

This work shall consist of furnishing and installing empty coilable non-metallic conduit (CNC) for detector loop raceways.

General.

The CNC installation shall be in accordance with Sections 810 and 811 of the Standard Specifications except for the following:

Add the following to Article 810.03 of the Standard Specifications:

CNC meeting the requirements of NEC Article 353 shall be used for detector loop raceways to the handholes.

Add the following to Article 811.03 of the Standard Specifications:

On temporary traffic signal installations with detector loops, CNC meeting the requirements of NEC Article 353 shall be used for detector loop raceways from the saw-cut to 10 feet (3m) up the wood pole, unless otherwise shown on the plans

Basis of Payment.

All installations of CNC for loop detection shall be included in the contract and not paid for separately.

HANDHOLES.

Add the following to Section 814 of the Standard Specifications:

All handholes shall be concrete, poured in place, with inside dimensions of 21-1/2 inches (549mm) minimum. Frames and lid openings shall match this dimension. The cover of the handhole frame shall be labeled "Traffic Signals" with legible raised letters.

For grounding purposes the handhole frame shall have provisions for a 7/16 inch (15.875mm) diameter stainless bolt cast into the frame. The covers shall have a stainless steel threaded stint extended from the eye hook assembly for the purpose of attaching the grounding conductor to the handhole cover.

The minimum wall thickness for heavy duty hand holes shall be 12 inches (300mm).

All conduits shall enter the handhole at a depth of 30 inches (760mm) except for the conduits for detector loops when the handhole is less than 5 feet (1.52 m) from the detector loop. All conduit ends should be sealed with a waterproof sealant to prevent the entrance of contaminants into the handhole.

Steel cable hooks shall be coated with hot-dipped galvanization in accordance with AASHTO Specification M111. Hooks shall be a minimum of 1/2 inch (12.7 mm) diameter with two 90 degree bends and extend into the handhole at least 6 inches (150 mm). Hooks shall be placed a minimum of 12 inches (300 mm) below the lid or lower if additional space is required.

GROUNDING CABLE.

The cable shall meet the requirements of Section 817 of the "Standard Specifications," except for the following:

Add the following to Article 817.02 (b) of the Standard Specifications:

TS-13

Unless otherwise noted on the Plans, traffic signal grounding conductor shall be one conductor, #6 gauge copper, with a green color coded XLP jacket.

The traffic signal grounding conductor shall be bonded, using a Listed grounding connector (Burndy type KC/K2C, as applicable, or approved equal), to all proposed and existing traffic signal mast arm poles and traffic/pedestrian signal posts, including push button posts. The grounding conductor shall be bonded to all proposed and existing pull boxes, handhole frames and covers and other metallic enclosures throughout the traffic signal wiring system and noted herein and detailed on the plans. The grounding conductor shall be bonded to conduit terminations using rated grounding bushings. Bonding to existing handhole frames and covers shall be paid for separately.

Add the following to Article 817.05 of the Standard Specifications:

Basis of Payment.

Grounding cable shall be measured in place for payment in foot (meter). Payment shall be at the contract unit price for ELECTRIC CABLE IN CONDUIT, GROUNDING, NO. 6, 1C, which price includes all associated labor and material including grounding clamps, splicing, exothermic welds, grounding connectors, conduit grounding bushings, and other hardware.

RAILROAD INTERCONNECT CABLE.

The cable shall meet the requirements of Section 873 of the Standard Specifications, except for the following:

Add to Article 873.02 of the Standard Specifications:

The railroad interconnect cable shall be three conductor stranded #14 copper cable in a clear polyester binder, shielded with #36 AWG tinned copper braid with 85% coverage, and insulated with .016" polyethylene (black, blue, red). The jacket shall be black 0.045 PVC or polyethylene.

Add the following to Article 873.05 of the Standard Specifications:

Basis of Payment.

This work shall be paid for at the contract unit price per foot (meter) for ELECTRIC CABLE IN CONDUIT, RAILROAD, NO. 14 3C, which price shall be payment in full for furnishing, installing, and making all electrical connections in the traffic signal controller cabinet. Connections in the railroad controller cabinet shall be performed by railroad personnel.

FIBER OPTIC TRACER CABLE.

The cable shall meet the requirements of Section 817 of the "Standard Specifications," except for the following:

Add the following to Article 817.03 of the Standard Specifications:

In order to trace the fiber optic cable after installation, the tracer cable shall be installed in the same conduit as the fiber optic cable in locations shown on the plans. The tracer cable shall be

continuous, extended into the controller cabinet and terminated on a barrier type terminal strip mounted on the side wall of the controller cabinet. The barrier type terminal strip and tracer cable shall be clearly marked and identified. All tracer cable splices shall be kept to a minimum and shall incorporate maximum lengths of cable supplied by the manufacturer. The tracer cable will be allowed to be spliced at handholes only. The tracer cable splice shall use a Western Union Splice soldered with resin core flux and shall be soldered using a soldering iron. Blow torches or other devices which oxidize copper cable shall not be allowed for soldering operations. All exposed surfaces of the solder shall be smooth. The splice shall be covered with a black shrink tube meeting UL 224 guidelines, Type V and rated 600v, minimum length 4 inches (100 mm) and with a minimum 1 inch (25 mm) coverage over the XLP insulation, underwater grade.

Add the following to Article 817.05 of the Standard Specifications:

Basis of Payment.

The tracer cable shall be paid for separately as ELECTRIC CABLE IN CONDUIT, TRACER, NO. 14 1C per foot (meter), which price shall include all associated labor and material for installation.

MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION.

Revise Articles 850.02 and 850.03 of the Standard Specifications to read:

Procedure.

The energy charges for the operation of the traffic signal installation shall be paid for by others. Full maintenance responsibility shall start as soon as the Contractor begins any physical work on the Contract or any portion thereof.

The Contractor shall have electricians with IMSA Level II certification on staff to provide signal maintenance.

This item shall include maintenance of all traffic signal equipment at the intersection, including emergency vehicle pre-emption equipment, master controllers, uninterruptible power supply (UPS and batteries), telephone service installations, communication cables, conduits to adjacent intersections, and other traffic signal equipment, but shall not include Automatic Traffic Enforcement equipment, such as Red Light Enforcement cameras, detectors, or peripheral equipment, not owned by the State.

Maintenance.

The maintenance shall be according to MAINTENANCE AND RESPONSIBILITY in Division 800 of these specifications and the following:

The Contractor shall check all controllers every two (2) weeks, which will include visually inspecting all timing intervals, relays, detectors, and pre-emption equipment to ensure that they are functioning properly. This item includes, as routine maintenance, all portions of emergency vehicle pre-emption equipment. The Contractor shall maintain in stock at all times a sufficient amount of materials and equipment to provide effective temporary and permanent repairs.

The Contractor shall provide immediate corrective action when any part or parts of the system fail to function properly. Two far side heads facing each approach shall be considered the

minimum acceptable signal operation pending permanent repairs. When repairs at a signalized intersection require that the controller be disconnected or otherwise removed from normal operation, and power is available, the Contractor shall place the traffic signal installation on flashing operation. The signals shall flash RED for all directions unless a different indication has been specified by the Engineer. The Contractor shall be required to place stop signs (R1-1-36) at each approach of the intersection as a temporary means of regulating traffic. When the signals operate in flash, the Contractor shall furnish and equip all their vehicles assigned to the maintenance of traffic signal installations with a sufficient number of stop signs as specified herein. The Contractor shall maintain a sufficient number of spare stop signs in stock at all times to replace stop signs which may be damaged or stolen.

The Contractor shall provide the Engineer with a 24 hour telephone number for the maintenance of the traffic signal installation and for emergency calls by the Engineer.

Traffic signal equipment which is lost or not returned to the Department for any reason shall be replaced with new equipment meeting the requirements of the Standard Specifications and these special provisions.

The Contractor shall respond to all emergency calls from the Department or others within one hour after notification and provide immediate corrective action. When equipment has been damaged or becomes faulty beyond repair, the Contractor shall replace it with new and identical equipment. The cost of furnishing and installing the replaced equipment shall be borne by the Contractor at no additional charge to the contract. The Contractor may institute action to recover damages from a responsible third party. If at any time the Contractor fails to perform all work as specified herein to keep the traffic signal installation in proper operating condition or if the Engineer cannot contact the Contractor's designated personnel, the Engineer shall have the State's Electrical Maintenance Contractor perform the maintenance work required. The State's Electrical Maintenance Contractor shall bill the Contractor for the total cost of the work. The Contractor shall pay this bill within thirty (30) days of the date of receipt of the invoice or the cost of such work will be deducted from the amount due the Contractor. The Contractor shall allow the Electrical Maintenance Contractor to make reviews of the Existing Traffic Signal Installation that has been transferred to the Contractor for Maintenance.

TRAFFIC ACTUATED CONTROLLER.

Add the following to Article 857.02 of the Standard Specifications:

Controllers shall be NTCIP compliant NEMA TS2 Type 1, Econolite ASC/3S-1000 or Eagle/Siemens M50 unless specified otherwise on the plans or elsewhere on these specifications. Only controllers supplied by one of the District One approved closed loop equipment manufacturers will be allowed. The controller shall be the most recent model and software version supplied by the manufacturer at the time of the approval and include the standard data key. The traffic signal controller shall provide features to inhibit simultaneous display of a circular yellow ball and a yellow arrow display. Individual load switches shall be provided for each vehicle, pedestrian, and right turn over lap phase. The controller shall prevent phases from being skipped during program changes and after all preemption events.

Add the following to Article 857.03 of the Standard Specifications:

The Contractor shall arrange to install a standard voice-grade dial-up telephone line to the RAILROAD, FULL-ACTUATED CONTROLLER AND CABINET as called for on the traffic signal installation plans. If the traffic signal installation is part of a traffic signal system, a telephone line is usually not required, unless a telephone line is called for on the traffic signal plans. The Contractor shall follow the requirements for the telephone service installation as contained in the current District One Traffic Signal Special Provisions under Master Controller.

MASTER CONTROLLER.

Revise Articles 860.02 - Materials and 860.03 - Installation of the Standard Specifications to read:

Only controllers supplied by one of the District approved closed loop equipment manufacturers will be allowed. Only NEMA TS 2 Type 1 Eagle/Siemens and Econolite closed loop systems shall be supplied. The latest model and software version of master controller shall be supplied.

Functional requirements in addition to those in Section 863 of the Standard Specifications include:

The system commands shall consist of, as a minimum, six (6) cycle lengths, five (5) offsets, three (3) splits, and four (4) special functions. The system commands shall also include commands for free or coordinated operation.

Traffic Responsive operation shall consist of the real time acquisition of system detector data, data validation, and the scaling of acquired volumes and occupancies in a deterministic fashion so as to cause the selection and implementation of the most suitable traffic plan.

Upon request by the Engineer, each master shall be delivered with up to three (3) complete sets of the latest edition of registered remote monitoring software with full manufacture's support. Each set shall consist of software on CD, DVD, or other suitable media approved by the Engineer, and a bound set of manuals containing loading and operating instruction. One copy of the software and support data shall be delivered to the Agency in charge of system operation, if other than IDOT. One of these two sets will be provided to the Agency Signal Maintenance Contractor for use in monitoring the system.

The approved manufacturer of equipment shall loan the District one master controller and two intersection controllers of the most recent models and the newest software version to be used for instructional purposes in addition to the equipment to be supplied for the Contract.

The Contractor shall arrange to install a standard voice-grade dial-up telephone line to the master controller. This shall be accomplished through the following process utilizing District One staff. This telephone line may be coupled with a DSL line and a phone filter to isolate the dial-up line. An E911 address is required.

The cabinet shall be provided with an Outdoor Network Interface for termination of the telephone service. It shall be mounted to the inside of the cabinet in a location suitable to provide access for termination of the telephone service at a later date.

Full duplex communication between the master and its local controllers is recommended, but at this time not required. The data rate shall be 1200 baud minimum and shall be capable of

speeds to 38,400 or above as technology allows. The controller, when installed in an Ethernet topology, may operate non-serial communications.

The cabinet shall be equipped with a 9600 baud, auto dial/auto answer modem. It shall be a US robotics 33.6K baud rate or equal.

As soon as practical or within one week after the contract has been awarded, the Contractor shall contact (via phone) the Administrative Support Manager in the District One Business Services Section at (847) 705-4011 to request a phone line installation.

A follow-up fax transmittal to the Administrative Support Manager (847-705-4712) with all required information pertaining to the phone installation is required from the Contractor as soon as possible or within one week after the initial request has been made. A copy of this fax transmittal must also be faxed by the Contractor to the Traffic Signal Systems Engineer at (847) 705-4089. The required information to be supplied on the fax shall include (but not limited to): A street address for the new traffic signal controller (or nearby address); a nearby existing telephone number; what type of telephone service is needed; the name and number of the Contractor's employee for the telephone company to contact regarding site work and questions.

The usual time frame for the activation of the phone line is 4-6 weeks after the Business Services Section has received the Contractor supplied fax. It is, therefore, imperative that the phone line conduit and pull-string be installed by the Contractor in anticipation of this time frame. On jobs which include roadway widening in which the conduit cannot be installed until this widening is completed, the Contractor will be allowed to delay the phone line installation request to the Business Services Section until a point in time that is 4-6 weeks prior to the anticipated completion of the traffic signal work. The contractor shall provide the Administrative Support Manager with an expected installation date considering the 4-6 week processing time.

The telephone line shall be installed and activated one month before the system final inspection.

All costs associated with the telephone line installation and activation (not including the Contract specified conduit installation between the point of telephone service and the traffic signal controller cabinet) shall be paid for by the District One Business Services Section (i.e., this will be an IDOT phone number not a Contractor phone number).

UNINTERRUPTIBLE POWER SUPPLY.

Add the following to Article 862.01 of the Standard Specifications:

The UPS shall have the power capacity to provide normal operation of a signalized intersection that utilizes all LED type signal head optics, for a minimum of six hours.

Add the following to Article 862.02 of the Standard Specifications:

Materials shall be according to Article 1074.04 as modified in UNINTERRUPTIBLE POWER SUPPLY in Division 1000 of these specifications.

Add the following to Article 862.03 of the Standard Specifications:

The UPS shall additionally include, but not be limited to, a battery cabinet. The UPS shall provide reliable emergency power to the traffic signals in the event of a power failure or interruption.

Revise Article 862.04 of the Standard Specifications to read:

Installation.

When a UPS is installed at an existing traffic signal cabinet, the UPS cabinet shall partially rest on the lip of the existing controller cabinet foundation and be secured to the existing controller cabinet by means of at least four (4) stainless steel bolts. The UPS cabinet shall be completely enclosed with the bottom and back constructed of the same material as the cabinet.

When a UPS is installed at a new signal cabinet and foundation, it shall be mounted as shown on the plans.

At locations where UPS is installed and Emergency Vehicle Priority System is in use, any existing incandescent confirmation beacons shall be replaced with LED lamps in accordance with the District One Emergency Vehicle Priority System specification at no additional cost to the contract. A concrete apron 67 in. x 50 in. x 5 in. (1702mm x 1270mm x 130mm) shall be provided on the side of the existing Type D Foundation, where the UPS cabinet is located. The concrete apron shall follow the District 1 Standard Traffic Signal Design Detail, Type D for Ground Mounted Controller Cabinet and UPS Battery Cabinet. The concrete apron shall follow Articles 424 and 202 of the Standard Specifications.

This item shall include any required modifications to an existing traffic signal controller as a result of the addition of the UPS.

Revise Article 862.05 of the Standard Specifications to read:

Basis of Payment.

This work will be paid for at the contract unit price per each for UNINTERRUPTIBLE POWER SUPPLY SPECIAL. Replacement of Emergency Vehicle Priority System confirmation beacons and any required modifications to the traffic signal controller shall be included in the cost of the UNINTERRUPTIBLE POWER SUPPLY SPECIAL item. The concrete apron and earth excavation required shall be included in the cost of the UNINTERRUPTIBLE POWER SUPPLY SPECIAL item.

FIBER OPTIC CABLE.

Add the following to Article 871.01 of the Standard Specifications:

The Fiber Optic cable shall be installed in conduit or as specified on the plans.

Add the following to Article 872.02 of the Standard Specifications:

The control cabinet distribution enclosure shall be CSC FTWO12KST-W/O 12 Port Fiber Wall Enclosure or an approved equivalent. The fiber optic cable shall provide six fibers per tube for the amount of fibers called for in the Fiber Optic Cable pay item in the Contract. Fiber Optic cable may be gel filled or have an approved water blocking tape.

Add the following to Article 871.04 of the Standard Specifications:

A minimum of six multimode fibers from each cable shall be terminated with approved mechanical connectors at the distribution enclosure. Fibers not being used shall be labeled "spare." Fibers not attached to the distribution enclosure shall be capped and sealed. A minimum of 13.0 feet (4m) of extra cable length shall be provided for controller cabinets. The controller cabinet extra cable length shall be stored as directed by the Engineer.

Add the following to Article 871.06 of the Standard Specifications:

The distribution enclosure and all connectors will be included in the cost of the fiber optic cable.

MAST ARM ASSEMBLY AND POLE.

Revise Article 877.01 of the Standard Specifications to read:

Description.

This work shall consist of furnishing and installing a steel mast arm assembly and pole and a galvanized steel or extruded aluminum shroud for protection of the base plate.

Revise Article 877.03 of the Standard Specifications:

Mast arm assembly and pole shall be as follows.

- (a) Steel Mast Arm Assembly and Pole and Steel Combination Mast Arm Assembly and Pole. The steel mast arm assembly and pole and steel combination mast arm assembly and pole shall consist of a traffic signal mast arm, a luminaire mast arm or davit (for combination pole only), a pole, and a base, together with anchor rods and other appurtenances. The configuration of the mast arm assembly, pole, and base shall be according to the details shown on the plans.
 - (1) Loading. The mast arm assembly and pole, and combination mast arm assembly and pole shall be designed for the loading shown on the Highway Standards or elsewhere on the plans, whichever is greater. The design shall be according to AASHTO "Standard Specification for Structural Supports for Highway Signs, Luminaries and Traffic Signals" 1994 Edition for 80 mph (130 km/hr) wind velocity. However, the arm-to-pole connection for tapered signal and luminaire arms shall be according to the "ring plate" detail as shown in Figure 11-1(f) of the 2002 Interim, to the AASHTO "Standard Specification for Structural Supports for Highway Signs, Luminaries and Traffic Signals" 2001 4th Edition.
 - (2) Structural Steel Grade. The mast arm and pole shall be fabricated according to ASTM A 595, Grade A or B, ASTM A 572 Grade 55, or ASTM A 1011 Grade 55 HSLAS Class 2. The base and flange plates shall be of structural steel according to AASHTO M 270 Grade 50 (M 270M Grade 345). Luminaire arms and trussed arms 15 ft (4.5 m) or less shall be fabricated from one steel pipe or tube size according to ASTM A 53 Grade B or ASTM A 500 Grade B or C. All mast arm assemblies, poles, and bases shall be galvanized according to AASHTO M 111.
 - (3) Fabrication. The design and fabrication of the mast arm assembly, pole, and base shall be according to the requirements of the Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals published by AASHTO.

The mast arm and pole may be of single length or sectional design. If section design is used, the overlap shall be at least 150 percent of the maximum diameter of the overlapping section and shall be assembled in the factory.

The manufacturer will be allowed to slot the base plate in which other bolt circles may fit, providing that these slots do not offset the integrity of the pole. Circumferential welds of tapered arms and poles to base plates shall be full penetration welds.

- (4) Shop Drawing Approval. The Contractor shall submit detailed drawings showing design materials, thickness of sections, weld sizes, and anchor rods to the Engineer for approval prior to fabrication. These drawings shall be at least 11 x 17 in. (275 x 425 mm) in size and of adequate quality for microfilming. All product data and shop drawings shall be submitted in electronic form on CD-ROM
- (b) Anchor Rods. The anchor rods shall be ASTM F 1554 Grade 105, coated by the hot-dip galvanizing process according to AASHTO M 232, and shall be threaded a minimum of 7 1/2 in. (185 mm) at one end and have a bend at the other end. The first 12 in. (300 mm) at the threaded end shall be galvanized. Two nuts, one lock washer, and one flat washer shall be furnished with each anchor rod. All nuts and washers shall be galvanized.
- (c) The galvanized steel or extruded aluminum shroud shall have dimensions similar to those detailed in the "District One Standard Traffic Signal Design Details." The shroud shall be installed such that it allow air to circulate throughout the mast arm but not allow infestation of insects or other animals, and such that it is not hazardous to probing fingers and feet.

Add the following to Article 877.04 of the Standard Specifications:

The shroud shall not be paid for separately but shall be included in the cost of the mast arm assembly and pole.

CONCRETE FOUNDATIONS.

Add the following to Article 878.03 of the Standard Specifications:

All anchor bolts shall be according to Article 1006.09, with all anchor bolts hot dipped galvanized a minimum of 12 in. (300 mm) from the threaded end.

Concrete Foundations, Type "A" for Traffic Signal Posts shall provide anchor bolts with the bolt pattern specified within the "District One Standard Traffic Signal Design Details." All Type "A" foundations shall be a minimum depth of 48 inches (1220 mm).

Concrete Foundations, Type "C" for Traffic Signal Cabinets with Uninterruptible Power Supply (UPS) cabinet installations shall be a minimum of 72 inches (1830 mm) long and 31 inches (790 mm) wide. All Type "C" foundations shall be a minimum depth of 48 inches (1220 mm). The concrete apron in front of the Type IV or V cabinet shall be 36 in. x 48 in. x 5 in. (915 mm X 1220 mm X 130 mm). The concrete apron in front of the UPS cabinet shall be 36 in. x 67 in. x

5 in. (915 mm X 1700 mm X 130 mm). Anchor bolts shall provide bolt spacing as required by the manufacturer.

Concrete Foundations, Type "D" for Traffic Signal Cabinets shall be a minimum of 48 inches (1220 mm) long and 31 inches (790 mm) wide. All Type "D" foundations shall be a minimum depth of 48 inches (1220 mm). The concrete apron shall be 36 in. x 48 in. x 5 in. (910 mm X 1220 mm X 130 mm). Anchor bolts shall provide bolt spacing as required by the manufacturer.

Concrete Foundations, Type "E" for Mast Arm and Combination Mast Arm Poles shall meet the current requirements listed in the Highway Standards.

Foundations used for Combination Mast Arm Poles shall provide an extra 2-1/2 inch (65 mm) raceway.

No foundation is to be poured until the Resident Engineer gives his/her approval as to the depth of the foundation.

LIGHT EMITTING DIODE (LED) SIGNAL HEAD AND OPTICALLY PROGRAMMED LED SIGNAL HEAD.

Add the following to the first paragraph of Article 880.04 of the Standard Specifications:

Basis of Payment.

The price shall include furnishing the equipment described above, all mounting hardware and installing them in satisfactory operating condition.

LIGHT EMITTING DIODE (LED), SIGNAL HEAD, RETROFIT

Description.

This work shall consist of retrofitting an existing polycarbonate traffic signal head with a traffic signal module, pedestrian signal module, and pedestrian countdown signal module, with light emitting diodes (LEDs) as specified in the plans.

Materials.

Materials shall be according to LIGHT EMITTING DIODE (LED) AND OPTICALLY PROGRAMMED LED SIGNAL HEAD, AND LIGHT EMITTING DIODE (LED) PEDESTRIAN SIGNAL HEAD in Divisions 880, 881 and 1000 of these specifications.

Add the following to Article 880.04 of the Standard Specifications:

Basis of Payment.

This item shall be paid for at the contract unit price each for SIGNAL HEAD, LED, RETROFIT, or PEDESTRIAN SIGNAL HEAD, LED, RETROFIT, for the type and number of polycarbonate signal heads, faces, and sections specified, which price shall be payment in full for furnishing the equipment described above including LED modules, all mounting hardware, and installing them in satisfactory operating condition. The type specified will indicate the number of faces and the method of mounting.

LIGHT EMITTING DIODE (LED) PEDESTRIAN SIGNAL HEAD

Add the following to the third paragraph of Article 881.03 of the Standard Specifications:

No mixing of different types of pedestrian traffic signals or displays will be permitted.

Add the following to Article 881.03 of the Standard Specifications:

(a) Pedestrian Countdown Signal Heads.

- (1) Pedestrian Countdown Signal Heads shall not be installed at signalized intersections where traffic signals and railroad warning devices are interconnected.
- (2) Pedestrian Countdown Signal Heads shall be 16 inch (406mm) x 18 inch (457mm), for single units with the housings glossy black polycarbonate. Connecting hardware and mounting brackets shall be polycarbonate (black). A corrosion resistant anti-seize lubricant shall be applied to all metallic mounting bracket joints, and shall be visible to the inspector at the signal turn-on.
- (3) Each pedestrian signal LED module shall be fully MUTCD compliant and shall consist of double overlay message combining full LED symbols of an Upraised Hand and a Walking Person. "Egg Crate" type sun shields are not permitted. Numerals shall measure 9 inches (229mm) in height and easily identified from a distance of 120 feet (36.6m).

Add the following to Article 881.04 of the Standard Specifications:

Basis of Payment.

The price shall include furnishing the equipment described above, all mounting hardware and installing them in satisfactory operating condition.

DETECTOR LOOP.

Revise Section 886 of the Standard Specifications to read:

Description.

This work shall consist of furnishing and installing a detector loop in the pavement.

Procedure.

A minimum of seven (7) working days prior to the Contractor cutting loops, the Contractor shall have the proposed loop locations marked and contact the Area Traffic Signal Maintenance and Operations Engineer (847) 705-4424 to inspect and approve the layout. When preformed detector loops are installed, the Contractor shall have them inspected and approved prior to the pouring of the Portland cement concrete surface, using the same notification process as above.

Installation.

Loop detectors shall be installed according to the requirements of the "District One Standard Traffic Signal Design Details." Saw-cuts (homeruns on preformed detector loops) from the loop

to the edge of pavement shall be made perpendicular to the edge of pavement when possible in order to minimize the length of the saw-cut (homerun on preformed detector loops) unless directed otherwise by the Engineer or as shown on the plan.

The detector loop cable insulation shall be labeled with the cable specifications.

Each loop detector lead-in wire shall be labeled in the handhole using a Panduit PLFIM water proof tag, or an approved equal, secured to each wire with nylon ties.

Resistance to ground shall be a minimum of 100 mega-ohms under any conditions of weather or moisture. Inductance shall be more than 50 and less than 700 microhenries. Quality readings shall be more than 5.

- (a) Type I. All loops installed in new asphalt pavement shall be installed in the binder course and not in the surface course. The edge of pavement, curb and handhole shall be cut with a 1/4 inch (6.3 mm) deep x 4 inches (100 mm) saw cut to mark location of each loop lead-in.
- (b) Loop sealant shall be a two-component thixotropic chemically cured polyurethane either Chemque Q-Seal 295, Percol Elastic Cement AC Grade or an approved equal. The sealant shall be installed 1/8 inch (3 mm) below the pavement surface, if installed above the surface the overlap shall be removed immediately.
- (c) Detector loop measurements shall include the saw cut and the length of the loop lead-in to the edge of pavement. The lead-in wire, including all necessary connections for proper operations, from the edge of pavement to the handhole, shall be included in the price of the detector loop. Unit duct, trench and backfill, and drilling of pavement or handholes shall be included in detector loop quantities.
- (d) Preformed. This work shall consist of furnishing and installing a rubberized or crosslinked polyethylene heat resistant preformed traffic signal loop in accordance with the Standard Specifications, except for the following:
- (e) Preformed detector loops shall be installed in new pavement constructed of Portland cement concrete using mounting chairs or tied to re-bar or the preformed detector loops may be placed in the sub-base. Loop lead-ins shall be extended to a temporary protective enclosure near the proposed handhole location. The protective enclosure shall provide sufficient protection from other construction activities and may be buried for additional protection.
- (f) Handholes shall be placed next to the shoulder or back of curb when preformed detector loops enter the handhole. Non-metallic coilable duct, included in this pay item, shall be used to protect the preformed lead-ins from back of curb to the handhole.
- (g) Preformed detector loops shall be factory assembled with ends capped and sealed against moisture and other contaminants. Homeruns and interconnects shall be pre-wired and shall be an integral part of the loop assembly. The loop configurations and homerun lengths shall be assembled for the specific application. The loop and homerun shall be constructed using 11/16 inch (17.2 mm) outside diameter (minimum), 3/8 inch (9.5 mm) inside diameter (minimum) Class A oil resistant synthetic cord reinforced hydraulic hose with 250 psi (1,720 kPa) internal pressure rating or a similarly sized XLPE cable jacket. Hose for the loop and homerun assembly shall be one continuous piece. No joints or splices shall be allowed in

the hose except where necessary to connect homeruns or interconnects to the loops. This will provide maximum wire protection and loop system strength. Hose tee connections shall be heavy duty high temperature synthetic rubber. The tee shall be of proper size to attach directly to the hose, minimizing glue joints. The tee shall have the same flexible properties as the hose to insure that the whole assembly can conform to pavement movement and shifting without cracking or breaking. For XLPE jacketed preformed loops, all splice connections shall be soldered, sealed, and tested before being sealed in a high impact glass impregnated plastic splice enclosure. The wire used shall be #16 THWN stranded copper. The number of turns in the loop shall be application specific. Homerun wire pairs shall be twisted a minimum of four turns per foot. No wire splices will be allowed in the preformed loop assembly. The loop and homeruns shall be filled and sealed with a flexible sealant to insure complete moisture blockage and further protect the wire. The preformed loops shall be constructed to allow a minimum of 6.5 feet of extra cable in the handhole.

Method of Measurement.

This work will be measured for payment in feet (meters) in place. Type I detector loop will be measured along the sawed slot in the pavement containing the loop and lead-in, rather than the actual length of the wire. Preformed detector loops will be measured along the detector loop and lead-in embedded in the pavement, rather than the actual length of the wire.

Basis of Payment.

This work shall be paid for at the contract unit price per foot (meter) for DETECTOR LOOP, TYPE I or PREFORMED DETECTOR LOOP as specified in the plans, which price shall be payment in full for furnishing and installing the detector loop and all related connections for proper operation.

EMERGENCY VEHICLE PRIORITY SYSTEM.

Revise Section 887 of the Standard Specifications to read:

It shall be the Contractor's responsibility to contact the municipality or fire district to verify the brand of emergency vehicle pre-emption equipment to be installed prior to the contract bidding. The equipment must be completely compatible with all components of the equipment currently in use by the Agency.

All new installations shall be equipped with Confirmation Beacons as shown on the "District One Standard Traffic Signal Design Details." The Confirmation Beacon shall consist of a 6 watt Par 38 LED flood lamp with a 30 degree light spread, maximum 6 watt energy consumption at 120V, and a 2,000 hour warranty for each direction of pre-emption. The lamp shall have an adjustable mount with a weatherproof enclosure for cable splicing. All hardware shall be cast aluminum or stainless steel. Holes drilled into signal poles, mast arms, or posts shall require rubber grommets. In order to maintain uniformity between communities, the confirmation beacons shall indicate when the control equipment receives the pre-emption signal. The pre-emption movement shall be signalized by a flashing indication at the rate specified by Section 4L.01 of the "Manual on Uniform Traffic Control Devices," and other applicable sections of future editions. The stopped pre-empted movements shall be signalized by a continuous indication.

All light operated systems shall include security and transit preemption software and operate at a uniform rate of 14.035 Hz \pm 0.002, or as otherwise required by the Engineer, and provide compatible operation with other light systems currently being operated in the District.

This item shall include any required modifications to an existing traffic signal controller as a result of the addition of the EMERGENCY VEHICLE PRIORITY SYSTEM.

Basis of Payment.

The work shall be paid for at the contract unit price each for furnishing and installing LIGHT DETECTOR and LIGHT DETECTOR AMPLIFIER. Furnishing and installing the confirmation beacon shall be included in the cost of the Light Detector. Any required modifications to the traffic signal controller shall be included in the cost of the LIGHT DETECTOR AMPLIFIER. The preemption detector amplifier shall be paid for on a basis of (1) one each per intersection controller and shall provide operation for all movements required in the pre-emption phase sequence.

TEMPORARY TRAFFIC SIGNAL INSTALLATION.

Revise Section 890 of the Standard Specifications to read:

Description.

This work shall consist of furnishing, installing, maintaining, and removing a temporary traffic signal installation as shown on the plans, including but not limited to temporary signal heads, emergency vehicle priority systems, interconnect, vehicle detectors, uninterruptible power supply, and signing. Temporary traffic signal controllers and cabinets interconnected to railroad traffic control devices shall be new. When temporary traffic signals will be operating within a county or local agency Traffic Management System, the equipment must be NTCIP compliant and compatible with the current operating requirements of the Traffic Management System.

General.

Only an approved equipment vendor will be allowed to assemble the temporary traffic signal cabinet. Also, an approved equipment vendor shall assemble and test a temporary railroad traffic signal cabinet. (Refer to the "Inspection of Controller and Cabinet" specification). A representative of the approved control equipment vendor shall be present at the temporary traffic signal turn-on inspection.

Construction Requirements.

(a) Controllers.

1. Only controllers supplied by one of the District approved closed loop equipment manufacturers will be approved for use at temporary signal locations. All controllers used for temporary traffic signals shall be fully actuated NEMA microprocessor based with RS232 data entry ports compatible with existing monitoring software approved by IDOT District 1, installed in NEMA TS2 cabinets with 8 phase back panels, capable of supplying 255 seconds of cycle length and individual phase length settings up to 99 seconds. On projects with one lane open and two way traffic flow, such as bridge deck repairs, the temporary signal controller shall be capable of providing an adjustable all red clearance setting of up to 30 seconds in length. All controllers used for temporary traffic signals shall meet or exceed the requirements of Section 857 of the Standard Specifications

with regards to internal time base coordination and preemption. All railroad interconnected temporary controllers and cabinets shall be new and shall satisfy the requirements of Article 857.02 of the Standard Specifications as modified herein.

2. Only control equipment, including controller cabinet and peripheral equipment, supplied by one of the District approved closed loop equipment manufacturers will be approved for use at temporary traffic signal locations. All control equipment for the temporary traffic signal(s) shall be furnished by the Contractor unless otherwise stated in the plans. On projects with multiple temporary traffic signal installations, all controllers shall be the same manufacturer brand and model number with current software installed.
- (b) Cabinets. All temporary traffic signal cabinets shall have a closed bottom made of aluminum alloy. The bottom shall be sealed along the entire perimeter of the cabinet base to ensure a water, dust and insect-proof seal. The bottom shall provide a minimum of two (2) 4 inch (100 mm) diameter holes to run the electric cables through. The 4 inch (100 mm) diameter holes shall have a bushing installed to protect the electric cables and shall be sealed after the electric cables are installed.
 - (c) Grounding. Grounding shall be provided for the temporary traffic signal cabinet meeting or exceeding the applicable portions of the National Electrical Code, Section 806 of the Standard Specifications and shall meet the requirements of the District 1 Traffic Signal Specifications for "Grounding of Traffic Signal Systems."
 - (d) Traffic Signal Heads. All traffic signal sections and pedestrian signal sections shall be 12 inches (300 mm). Traffic signal sections shall be LED with expandable view, unless otherwise approved by the Engineer. Pedestrian signal heads shall be Light Emitting Diode (LED) Pedestrian Countdown Signal Heads except when a temporary traffic signal is installed at an intersection interconnected with a railroad grade crossing. When a temporary traffic signal is installed at an intersection interconnected with a railroad grade crossing, Light Emitting Diode (LED) Pedestrian Signal Heads shall be furnished. The temporary traffic signal heads shall be placed as indicated on the temporary traffic signal plan or as directed by the Engineer. The Contractor shall furnish enough extra cable length to relocate heads to any position on the span wire or at locations illustrated on the plans for construction staging. The temporary traffic signal shall remain in operation during all signal head relocations. Each temporary traffic signal head shall have its own cable from the controller cabinet to the signal head.
 - (e) Interconnect.
 1. Temporary traffic signal interconnect shall be provided using fiber optic cable or wireless interconnect technology as specified in the plans. The Contractor may request, in writing, to substitute the fiber optic temporary interconnect indicated in the contract documents with a wireless interconnect. The Contractor must provide assurances that the radio device will operate properly at all times and during all construction staging. If approved for use by the Engineer, the Contractor shall submit marked-up traffic signal plans indicating locations of radios and antennas and installation details. If wireless interconnect is used, and in the opinion of the engineer, it is not viable, or if it fails during testing or

operations, the Contractor shall be responsible for installing all necessary poles, fiber optic cable, and other infrastructure for providing temporary fiber optic interconnect at no cost to the contract.

2. The existing system interconnect and phone lines are to be maintained as part of the Temporary Traffic Signal Installation specified for on the plan. The interconnect shall be installed into the temporary controller cabinet as per the notes or details on the plans. All labor and equipment required to install and maintain the existing interconnect as part of the Temporary Traffic Signal Installation shall be included in the item Temporary Traffic Signal Installation. When shown in the plans, temporary traffic signal interconnect equipment shall be furnished and installed. The temporary traffic signal interconnect shall maintain interconnect communications throughout the entire signal system for the duration of the project.
3. Temporary wireless interconnect, complete. The radio interconnect system shall be compatible with Eagle or Econolite controller closed loop systems. This item shall include all temporary wireless interconnect components, complete, at the adjacent existing traffic signal(s) to provide a completely operational closed loop system. This item shall include all materials, labor and testing to provide the completely operational closed loop system as shown on the plans. The radio interconnect system shall include the following components:
 - a. Rack or Shelf Mounted RS-232 Frequency Hopping Spread Spectrum (FHSS) Radio
 - b. Software for Radio Configuration (Configure Frequency and Hopping Patterns)
 - c. Antennas (Omni Directional or Yagi Directional)
 - d. Antenna Cables, LMR400, Low Loss. Max. 100-ft from controller cabinet to antenna
 - e. Brackets, Mounting Hardware, and Accessories Required for Installation
 - f. RS232 Data Cable for Connection from the radio to the local or master controller
 - g. All other components required for a fully functional radio interconnect system

All controller cabinet modifications and other modifications to existing equipment that are required for the installation of the radio interconnect system components shall be included in this item.

The radio interconnect system may operate at 900Mhz (902-928) or 2.4 Ghz depending on the results of a site survey. The telemetry shall have an acceptable rate of transmission errors, time outs, etc. comparable to that of a hardwire system.

The proposed master controller and telemetry module shall be configured for use with the radio interconnect at a minimum rate of 9600 baud.

The radio interconnect system shall include all other components required for a complete and fully functional telemetry system and shall be installed in accordance to the manufacturers recommendations.

The following radio equipment is currently approved for use in Region One/District One: Encom Model 5100 and Intuicom Communicator II.

- (f) Emergency Vehicle Pre-Emption. All emergency vehicle preemption equipment (light detectors, light detector amplifiers, confirmation beacons, etc.) as shown on the temporary traffic signal plans shall be provided by the Contractor. It shall be the Contractor's responsibility to contact the municipality or fire district to verify the brand of emergency vehicle preemption equipment to be installed prior to the contract bidding. The equipment must be completely compatible with all components of the equipment currently in use by the Agency. All light operated systems shall operate at a uniform rate of 14.035 hz \pm 0.002, or as otherwise required by the Engineer, and provide compatible operation with other light systems currently being operated in the District. All labor and material required to install and maintain the Emergency Vehicle Preemption installation shall be included in the item Temporary Traffic Signal Installation.
- (g) Vehicle Detection. All temporary traffic signal installations shall have vehicular detection installed as shown on the plans or as directed by the Engineer. Pedestrian push buttons shall be provided for all pedestrian signal heads/phases as shown on the plans or as directed by the Engineer. All approaches shall have vehicular detection provided by vehicle detection system as shown on the plans or as directed by the Engineer. Microwave vehicle sensors or video vehicle detection system shall be approved by IDOT prior to Contractor furnishing and installing. The Contractor shall install, wire, and adjust the alignment of the microwave vehicle sensor or video vehicle detection system in accordance to the manufacturer's recommendations and requirements. The Contractor shall be responsible for adjusting the alignment of the microwave vehicle sensor or video vehicle detection system for all construction staging changes and for maintaining proper alignment throughout the project. A representative of the approved control equipment vendor shall be present and assist the contractor in setting up and maintaining the microwave vehicle sensor or video vehicle detection system. An in-cabinet video monitor shall be provided with all video vehicle detection systems and shall be included in the item Temporary Traffic Signal Installation.
- (h) Uninterruptible Power Supply. All temporary traffic signal installations shall have Uninterruptible Power Supply (UPS). The UPS cabinet shall be mounted to the temporary traffic signal cabinet and meet the requirements of Uninterruptible Power Supply in Divisions 800 and 1000 of these specifications.
- (i) Signs. All existing street name and intersection regulatory signs shall be removed from existing poles and relocated to the temporary signal span wire. If new mast arm assembly and pole(s) and posts are specified for the permanent signals, the signs shall be relocated to the new equipment at no extra cost. Any intersection regulatory signs that are required for the temporary traffic signal shall be provided as shown on the plans or as directed by the Engineer. Relocation, removing, bagging and installing the regulatory signs for the various construction stages shall be provided as shown on the plans or as directed by the Engineer.
- (j) Energy Charges. The electrical utility energy charges for the operation of the temporary traffic signal installation shall be paid for by others if the installation

replaces an existing signal. Otherwise charges shall be paid for under 109.05 of the Standard Specifications.

- (k) Maintenance. Maintenance shall meet the requirements of the Standard Specifications and MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION in Division 800 of these specifications. Maintenance of temporary signals and of the existing signals shall be included in the cost of the TEMPORARY TRAFFIC SIGNAL INSTALLATION pay item. When temporary traffic signals are to be installed at locations where existing signals are presently operating, the Contractor shall be fully responsible for the maintenance of the existing signal installation as soon as he begins any physical work on the Contract or any portion thereof. In addition, a minimum of seven (7) days prior to assuming maintenance of the existing traffic signal installation(s) under this Contract, the Contractor shall request that the Resident Engineer contact the Bureau of Traffic Operations (847) 705-4424 for an inspection of the installation(s).
- (l) Temporary Traffic Signals for Bridge Projects. Temporary Traffic Signals for bridge projects shall follow the State Standards, Standard Specifications, District One Traffic Signal Specifications and any plans for Bridge Temporary Traffic Signals included in the plans. The installation shall meet the Standard Specifications and all other requirements in this TEMPORARY TRAFFIC SIGNAL INSTALLATION specification. In addition all electric cable shall be aerially suspended, at a minimum height of 18 feet (5.5m) on temporary wood poles (Class 5 or better) of 45 feet (13.7 m) minimum height. The signal heads shall be span wire mounted or bracket mounted to the wood pole or as directed by the Engineer. The Controller cabinet shall be mounted to the wood pole as shown in the plans, or as directed by the Engineer. Microwave vehicle sensors or video vehicle detection system may be used in place of detector loops as approved by the Engineer.
- (m) Temporary Portable Traffic Signal for Bridge Projects.
1. Unless otherwise directed by the Engineer, temporary portable traffic signals shall be restricted to use on roadways of less than 8000 ADT that have limited access to electric utility service, shall not be installed on projects where the estimated need exceeds ten (10) weeks, and shall not be in operation during the period of November through March. The Contractor shall replace the temporary portable traffic signals with temporary span wire traffic signals noted herein at no cost to the contract if the bridge project or Engineer requires temporary traffic signals to remain in operation into any part of period of November through March. If, in the opinion of the engineer, the reliability and safety of the temporary portable traffic signal is not similar to that of a temporary span wire traffic signal installation, the Contractor shall replace the temporary portable traffic signals with temporary span wire traffic signals noted herein at no cost to the contract.
 2. The controller and LED signal displays shall meet the Standard Specifications and all other requirements in this TEMPORARY TRAFFIC SIGNAL INSTALLATION specification.
 3. Work shall be according to Article 701.18(b) of the Standard Specifications except as noted herein.

4. General.

- a. The temporary portable bridge traffic signals shall be trailer-mounted units. The trailer-mounted units shall be set up securely and level. Each unit shall be self-contained and consist of two signal heads. The left signal head shall be mounted on a mast arm capable of extending over the travel lane. Each unit shall contain a solar cell system to facilitate battery charging. There shall be a minimum of 12 days backup reserve battery supply and the units shall be capable of operating with a 120 V power supply from a generator or electrical service.
- b. All signal heads located over the travel lane shall be mounted at a minimum height of 17 feet (5m) from the bottom of the signal back plate to the top of the road surface. All far right signal heads located outside the travel lane shall be mounted at a minimum height of 8 feet (2.5m) from the bottom of the signal back plate to the top of the adjacent travel lane surface.
- c. The long all red intervals for the traffic signal controller shall be adjustable up to 250 seconds in one-second increments.
- d. As an alternative to detector loops, temporary portable bridge traffic signals may be equipped with microwave sensors or other approved methods of vehicle detection and traffic actuation.
- e. All portable traffic signal units shall be interconnected using hardwire communication cable. Radio communication equipment may be used only with the approval of the Engineer. If radio communication is used, a site analysis shall be completed to ensure that there is no interference present that would affect the traffic signal operation. The radio equipment shall meet all applicable FCC requirements.
- f. The temporary portable bridge traffic signal system shall meet the physical display and operational requirements of conventional traffic signals as specified in Part IV and other applicable portions of the currently adopted version of the Manual on Uniform Traffic Control Devices (MUTCD) and the Illinois MUTCD. The signal system shall be designed to continuously operate over an ambient temperature range between -30 °F (-34 °C) and 120 °F (48 °C). When not being utilized to inform and direct traffic, portable signals shall be treated as nonoperating equipment according to Article 701.11.
- g. Basis of Payment. This work will be paid for according to Article 701.20(c).

Basis of Payment.

This work shall be paid for at the contract unit price each for TEMPORARY TRAFFIC SIGNAL INSTALLATION, TEMPORARY BRIDGE TRAFFIC SIGNAL INSTALLATION, or TEMPORARY PORTABLE BRIDGE TRAFFIC SIGNAL INSTALLATION, the price of which shall include all costs for the modifications required for traffic staging, changes in signal phasing as required in

the Contract plans, microwave vehicle sensors, video vehicle detection system, any maintenance or adjustment to the microwave vehicle sensors/video vehicle detection system, the temporary wireless interconnect system complete, temporary fiber optic interconnect system complete, all material required, the installation and complete removal of the temporary traffic signal. Each intersection will be paid for separately.

REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT.

Add the following to Article 895.05 of the Standard Specifications:

The traffic signal equipment which is to be removed and is to become the property of the Contractor shall be disposed of outside the right-of-way at the Contractor's expense.

All equipment to be returned to the State shall be delivered by the Contractor to the State's Traffic Signal Maintenance Contractor's main facility. The Contractor shall contact the State's Electrical Maintenance Contractor to schedule an appointment to deliver the equipment. No equipment will be accepted without a prior appointment. All equipment shall be delivered within 30 days of removing it from the traffic signal installation. The Contractor shall provide 5 copies of a list of equipment that is to remain the property of the State, including model and serial numbers, where applicable. The Contractor shall also provide a copy of the Contract plan or special provision showing the quantities and type of equipment. Controllers and peripheral equipment from the same location shall be boxed together (equipment from different locations may not be mixed) and all boxes and controller cabinets shall be clearly marked or labeled with the location from which they were removed. If equipment is not returned with these requirements, it will be rejected by the State's Electrical Maintenance Contractor. The Contractor shall be responsible for the condition of the traffic signal equipment from the time Contractor takes maintenance of the signal installation until the acceptance of a receipt drawn by the State's Electrical Maintenance Contractor indicating the items have been returned in good condition.

The Contractor shall safely store and arrange for pick up or delivery of all equipment to be returned to agencies other than the State. The Contractor shall package the equipment and provide all necessary documentation as stated above.

Traffic signal equipment which is lost or not returned to the Department for any reason shall be replaced with new equipment meeting the requirements of these Specifications at no cost to the contract.

TRAFFIC SIGNAL PAINTING.

Description.

This work shall include surface preparation, powder type painted finish application and packaging of new galvanized steel traffic signal mast arm poles and posts assemblies. All work associated with applying the painted finish shall be performed at the manufacturing facility for the pole assembly or post or at a painting facility approved by the Engineer. Traffic signal mast arm shrouds and post bases shall also be painted the same color as the pole assemblies and posts.

Surface Preparation.

All weld flux and other contaminates shall be mechanically removed. The traffic mast arms and post assemblies shall be degreased, cleaned, and air dried to assure all moisture is removed.

Painted Finish.

All galvanized exterior surfaces shall be coated with a urethane or triglycidyl isocyanurate (TGIC) polyester powder to a dry film thickness of 2.0 mils. Prior to application, the surface shall be mechanically etched by brush blasting (Ref. SSPC-SP7) and the zinc coated substrate preheated to 450 °F for a minimum one (1) hour. The coating shall be electrostatically applied and cured by elevating the zinc-coated substrate temperature to a minimum of 400 °F.

The finish paint color shall be one of the manufacturer's standard colors and shall be as selected by the local agency responsible for paint costs. The Contractor shall confirm, in writing, the color selection with the local responsible agency and provide a copy of the approval to the Engineer and a copy of the approval shall be included in the material catalog submittal.

Painting of traffic signal heads, pedestrian signal heads and controller cabinets is not included in this pay item.

Any damage to the finish after leaving the manufacturer's facility shall be repaired to the satisfaction of the Engineer using a method recommended by the manufacturer and approved by the Engineer. If while at the manufacturer's facility the finish is damaged, the finish shall be re-applied at no cost to the contract.

Warranty.

The Contractor shall furnish in writing to the Engineer, the paint manufacturer's standard warranty and certification that the paint system has been properly applied.

Packaging.

Prior to shipping, the poles and posts shall be wrapped in ultraviolet-inhibiting plastic foam or rubberized foam.

Basis of Payment.

This work shall be paid for at the contract unit price each for PAINT NEW MAST ARM AND POLE, UNDER 40 FEET (12.19 METER), PAINT NEW MAST ARM AND POLE, 40 FEET (12.19 METER) AND OVER, PAINT NEW COMBINATION MAST ARM AND POLE, UNDER 40 FEET (12.19 METER), PAINT NEW COMBINATION MAST ARM AND POLE, 40 FEET (12.19 METER) AND OVER, or PAINT NEW TRAFFIC SIGNAL POST of the length specified, which shall be payment in full for painting and packaging the traffic signal mast arm poles and posts described above including all shrouds, bases and appurtenances.

ILLUMINATED STREET NAME SIGN

Description.

This work shall consist of furnishing and installing a LED internally illuminated street name sign.

Materials.

Materials shall be in accordance with ILLUMINATED STREET NAME SIGN in Division 1000 of these specifications.

Installation.

The sign can be mounted on most steel mast arm poles. Mounting on aluminum mast arm pole requires supporting structural calculations. Some older or special designed steel mast arm poles may require structural evaluation to assure that construction of the mast arm pole is adequate for the proposed additional loading. Structural calculations and other supporting documentation as determined by the Engineer shall be provided by the contractor for review by the Department.

The sign shall be located on a steel traffic signal mast arm no further than 8-feet from the center of the pole to the center of the sign at a height of between 16 to 18-feet above traveled pavement. Mounting hardware shall be Pelco model SE-5015, or approved equal, utilizing stainless steel components.

Signs shall be installed such that they are not energized when traffic signals are powered by an alternate energy source such as a generator or uninterruptible power supply (UPS). The signs shall be connected to the generator or UPS bypass circuitry.

Basis of Payment.

This work will be paid for at the contract unit price each for ILLUMINATED STREET NAME SIGN, of the length specified which shall be payment in full for furnishing and installing the LED internally illuminated street sign, complete with circuitry and mounting hardware including photo cell, circuit breaker, fusing, relay, connections and cabling as shown on the plans for proper operation and installation.

RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM.

Description.

This work shall consist of re-optimizing a closed loop traffic signal system according to the following Levels of work.

LEVEL I applies when improvements are made to an existing signalized intersection within an existing closed loop traffic signal system. The purpose of this work is to integrate the improvements to the subject intersection into the signal system while minimizing the impacts to the existing system operation. This type of work would be commonly associated with the addition of signal phases, pedestrian phases, or improvements that do not affect the capacity at an intersection.

LEVEL II applies when improvements are made to an existing signalized intersection within an existing closed loop traffic signal system and detailed analysis of the intersection operation is desired by the engineer, or when a new signalized or existing signalized intersection is being added to an existing system, but optimization of the entire system is not required. The purpose of this work is to optimize the subject intersection, while integrating it into the existing signal system with limited impact to the system operations. This item also includes an evaluation of the overall system operation, including the traffic responsive program.

For the purposes of re-optimization work, an intersection shall include all traffic movements operated by the subject controller and cabinet.

After the signal improvements are completed, the signal shall be re-optimized as specified by an approved Consultant who has previous experience in optimizing Closed Loop Traffic Signal Systems for District One of the Illinois Department of Transportation. The Contractor shall

contact the Traffic Signal Engineer at (847) 705-4424 for a listing of approved Consultants. Traffic signal system optimization work, including fine-tuning adjustments of the optimized system, shall follow the requirements stated in the most recent IDOT District 1 SCAT Guidelines, except as note herein.

A listing of existing signal equipment, interconnect information, phasing data, and timing patterns may be obtained from the Department, if available and as appropriate. The existing SCAT Report is available for review at the District One office and if the Consultant provides blank computer disks, copies of computer simulation files for the existing optimized system and a timing database that includes intersection displays will be made for the Consultant. The Consultant shall confer with the Traffic Signal Engineer prior to optimizing the system to determine if any extraordinary conditions exist that would affect traffic flows in the vicinity of the system, in which case, the Consultant may be instructed to wait until the conditions return to normal or to follow specific instructions regarding the optimization.

(a) LEVEL I Re-Optimization

1. The following tasks are associated with LEVEL I Re-Optimization.
 - a. Appropriate signal timings shall be developed for the subject intersection and existing timings shall be utilized for the rest of the intersections in the system.
 - b. Proposed signal timing plan for the new or modified intersection(s) shall be forwarded to IDOT for review prior to implementation.
 - c. Consultant shall conduct on-site implementation of the timings at the turn-on and make fine-tuning adjustments to the timings of the subject intersection in the field to alleviate observed adverse operating conditions and to enhance operations.
2. The following deliverables shall be provided for LEVEL I Re-Optimization.
 - a. Consultant shall furnish to IDOT a cover letter describing the extent of the re-optimization work performed.
 - b. Consultant shall furnish an updated intersection graphic display for the subject intersection to IDOT and to IDOT's Traffic Signal Maintenance Contractor.

(b) LEVEL II Re-Optimization

1. In addition to the requirements described in the LEVEL I Re-Optimization above, the following tasks are associated with LEVEL II Re-Optimization.
 - a. Traffic counts shall be taken at the subject intersection after the traffic signals are approved for operation by the Area Traffic Signal Operations Engineer. Manual turning movement counts shall be conducted from 6:30 a.m. to 9:30 a.m., 11:00 a.m. to 1:00 p.m., and 3:30 p.m. to 6:30 p.m. on a typical weekday from midday Monday to midday Friday. The turning movement counts shall identify cars, and single-unit, multi-unit heavy vehicles, and transit buses.
 - b. As necessary, the intersections shall be re-addressed and all system detectors reassigned in the master controller according to the current standard of District One.
 - c. Traffic responsive program operation shall be evaluated to verify proper pattern selection and lack of oscillation and a report of the operation shall be provided to IDOT.
2. The following deliverables shall be provided for LEVEL II Re-Optimization.
 - a. Consultant shall furnish to IDOT one (1) copy of a technical memorandum for the optimized system. The technical memorandum shall include the following elements:

- (1) Brief description of the project
 - (2) Printed copies of the analysis output from Synchro (or other appropriate, approved optimization software file)
 - (3) Printed copies of the traffic counts conducted at the subject intersection
- b. Consultant shall furnish to IDOT two (2) CDs for the optimized system. The CDs shall include the following elements:
- (1) Electronic copy of the technical memorandum in PDF format
 - (2) Revised Synchro files (or other appropriate, approved optimization software file) including the new signal and the rest of the signals in the closed loop system
 - (3) Traffic counts conducted at the subject intersection
 - (4) New or updated intersection graphic display file for the subject intersection
 - (5) The CD shall be labeled with the IDOT system number and master location, as well as the submittal date and the consultant logo. The CD case shall include a clearly readable label displaying the same information securely affixed to the side and front.

Basis of Payment.

This work shall be paid for at the contract unit price each for RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM – LEVEL I or RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM – LEVEL II, which price shall be payment in full for performing all work described herein per intersection. Following completion of the timings and submittal of specified deliverables, 100 percent of the bid price will be paid. Each intersection will be paid for separately.

OPTIMIZE TRAFFIC SIGNAL SYSTEM.

Description.

This work shall consist of optimizing a closed loop traffic signal system.

OPTIMIZE TRAFFIC SIGNAL SYSTEM applies when a new or existing closed loop traffic signal system is to be optimized and a formal Signal Coordination and Timing (SCAT) Report is to be prepared. The purpose of this work is to improve system performance by optimizing traffic signal timings, developing a time of day program and a traffic responsive program.

After the signal improvements are completed, the signal system shall be optimized as specified by an approved Consultant who has previous experience in optimizing Closed Loop Traffic Signal Systems for District One of the Illinois Department of Transportation. The Contractor shall contact the Traffic Signal Engineer at (847) 705-4424 for a listing of approved Consultants. Traffic signal system optimization work, including fine-tuning adjustments of the optimized system, shall follow the requirements stated in the most recent IDOT District 1 SCAT Guidelines, except as note herein.

A listing of existing signal equipment, interconnect information, phasing data, and timing patterns may be obtained from the Department, if available and as appropriate. The existing SCAT Report is available for review at the District One office and if the Consultant provides blank computer disks, copies of computer simulation files for the existing optimized system and a timing database that includes intersection displays will be made for the Consultant. The Consultant shall confer with the Traffic Signal Engineer prior to optimizing the system to determine if any extraordinary conditions exist that would affect traffic flows in the vicinity of the

system, in which case, the Consultant may be instructed to wait until the conditions return to normal or to follow specific instructions regarding the optimization.

- (a) The following tasks are associated with OPTIMIZE TRAFFIC SIGNAL SYSTEM.
1. Appropriate signal timings and offsets shall be developed for each intersection and appropriate cycle lengths shall be developed for the closed loop signal system.
 2. Traffic counts shall be taken at all intersections after the permanent traffic signals are approved for operation by the Area Traffic Signal Operations Engineer. Manual turning movement counts shall be conducted from 6:30 a.m. to 9:30 a.m., 11:00 a.m. to 1:00 p.m., and 3:30 p.m. to 6:30 p.m. on a typical weekday from midday Monday to midday Friday. The turning movement counts shall identify cars, and single-unit and multi-unit heavy vehicles.
 3. As necessary, the intersections shall be re-addressed and all system detectors reassigned in the master controller according to the current standard of District One.
 4. A traffic responsive program shall be developed, which considers both volume and occupancy. A time-of-day program shall be developed for used as a back-up system.
 5. Proposed signal timing plan for the new or modified intersection shall be forwarded to IDOT for review prior to implementation.
 6. Consultant shall conduct on-site implementation of the timings and make fine-tuning adjustments to the timings in the field to alleviate observed adverse operating conditions and to enhance operations.
 7. Speed and delay studies shall be conducted during each of the count periods along the system corridor in the field before and after implementation of the proposed timing plans for comparative evaluations. These studies should utilize specialized electronic timing and measuring devices.
- (b) The following deliverables shall be provided for OPTIMIZE TRAFFIC SIGNAL SYSTEM.
1. Consultant shall furnish to IDOT one (1) copy of a SCAT Report for the optimized system. The SCAT Report shall include the following elements:

Cover Page in color showing a System Map
Figures <ol style="list-style-type: none"> 1. System overview map – showing system number, system schematic map with numbered system detectors, oversaturated movements, master location, system phone number, cycle lengths, and date of completion. 2. General location map in color – showing signal system location in the metropolitan area. 3. Detail system location map in color – showing cross street names and local controller addresses. 4. Controller sequence – showing controller phase sequence diagrams.
Table of Contents
Tab 1: Final Report <ol style="list-style-type: none"> 1. Project Overview 2. System and Location Description (Project specific) 3. Methodology 4. Data Collection 5. Data Analysis and Timing Plan Development 6. Implementation <ol style="list-style-type: none"> a. Traffic Responsive Programming (Table of TRP vs. TOD Operation) 7. Evaluation <ol style="list-style-type: none"> a. Speed and Delay runs
Tab 2. Turning Movement Counts <ol style="list-style-type: none"> 1. Turning Movement Counts (Showing turning movement counts in the intersection diagram for each period, including truck percentage)
Tab 3. Synchro Analysis <ol style="list-style-type: none"> 1. AM: Time-Space diagram in color, followed by intersection Synchro report (Timing report) summarizing the implemented timings. 2. Midday: same as AM 3. PM: same as AM
Tab 4: Speed, Delay Studies <ol style="list-style-type: none"> 1. Summary of before and after runs results in two (2) tables showing travel time and delay time. 2. Plot of the before and after runs diagram for each direction and time period.
Tab 5: Environmental Report <ol style="list-style-type: none"> 1. Environmental impact report including gas consumption, NO2, HCCO, improvements.
Tab 6: Electronic Files <ol style="list-style-type: none"> 1. Two (2) CDs for the optimized system. The CDs shall include the following elements: <ol style="list-style-type: none"> a. Electronic copy of the SCAT Report in PDF format b. Copies of the Synchro files for the optimized system c. Traffic counts for the optimized system d. New or updated intersection graphic display files for each of the system intersections and the system graphic display file including system detector locations and addresses.

Basis of Payment.

The work shall be paid for at the contract unit each for OPTIMIZE TRAFFIC SIGNAL SYSTEM, which price shall be payment in full for performing all work described herein for the entire traffic signal system. Following the completion of traffic counts, 25 percent of the bid price will be

paid. Following the completion of the Synchro analysis, 25 percent of the bid price will be paid. Following the setup and fine tuning of the timings, the speed-delay study, and the TRP programming, 25 percent of the bid price will be paid. The remaining 25 percent will be paid when the system is working to the satisfaction of the engineer and the report and CD have been submitted.

TEMPORARY TRAFFIC SIGNAL TIMINGS

Description.

This work shall consist of developing and maintaining appropriate traffic signal timings for the specified intersection for the duration of the temporary signalized condition, as well as impact to existing traffic signal timings caused by detours or other temporary conditions.

All timings and adjustments necessary for this work shall be performed by an approved Consultant who has previous experience in optimizing Closed Loop Traffic signal Systems for District One of the Illinois Department of Transportation. The Contractor shall contact the Traffic Signal Engineer at (847) 705-4424 for a listing of approved Consultants.

The following tasks are associated with TEMPORARY TRAFFIC SIGNAL TIMINGS.

- (a) Consultant shall attend temporary traffic signal inspection (turn-on) and/or detour meeting and conduct on-site implementation of the traffic signal timings. Make fine-tuning adjustments to the timings in the field to alleviate observed adverse operating conditions and to enhance operations.
- (b) Consultant shall provide monthly observation of traffic signal operations in the field.
- (c) Consultant shall provide on-site consultation and adjust timings as necessary for construction stage changes, temporary traffic signal phase changes, and any other conditions affecting timing and phasing, including lane closures, detours, and other construction activities.
- (d) Consultant shall make timing adjustments and prepare comment responses as directed by the Area Traffic Signal Operations Engineer.

Basis of Payment.

The work shall be paid for at the contract unit price each for TEMPORARY TRAFFIC SIGNAL TIMINGS, which price shall be payment in full for performing all work described herein per intersection. When the temporary traffic signal installation is turned on and/or detour implemented, 50 percent of the bid price will be paid. The remaining 50 percent of the bid price will be paid following the removal of the temporary traffic signal installation and/or detour.

MODIFYING EXISTING CONTROLLER CABINET.

The work shall consist of modifying an existing controller cabinet as follows:

- (a) Uninterruptible Power Supply (UPS). The addition of uninterruptible power supply (UPS) to an existing controller cabinet could require the relocation of the existing controller cabinet items to allow for the installation of the uninterruptible power supply (UPS) components inside the existing controller cabinet as outlined under Sections 862 and 1074.04 of the Standard Specifications.
- (b) Light Emitting Diode (LED) Signal Heads, Light Emitting Diode (LED) Optically Programmed Signal Heads and Light Emitting Diode (LED) Pedestrian Signal Heads. The contractor shall verify that the existing load switches meet the requirements of Section 1074.03(5)(b)(2) of the Standard Specifications and the recommended load requirements of the light emitting diode (LED) signal heads that are being installed at the existing traffic signal. If any of the existing load switches do not meet these requirements, they shall be replaced, as directed by the Engineer.
- (c) Light Emitting Diode (LED), Signal Head, Retrofit. The contractor shall verify that the existing load switches meet the requirements of Section 1074.03(2) of the Standard Specifications and the recommended load requirements of light emitting diode (LED) traffic signal modules, pedestrian signal modules, and pedestrian countdown signal modules as specified in the plans. If any of the existing load switches do not meet these requirements, they shall be replaced, as directed by the Engineer.

Basis of Payment.

Modifying an existing controller cabinet will be paid for at the contract unit price per each for MODIFY EXISTING CONTROLLER CABINET. This shall include all material and labor required to complete the work as described above, the removal and disposal of all items removed from the controller cabinet, as directed by the Engineer. The equipment for the Uninterruptible Power Supply (UPS) and labor to install it in the existing controller cabinet shall be included in the pay item Uninterruptible Power Supply. Modifying an existing controller will be paid for at the contract unit price per each for MODIFY EXISTING CONTROLLER, per Sections 895.04 and 895.08 of the Standard Specifications.

DIVISION 1000 MATERIALS

PEDESTRIAN PUSH-BUTTON.

Revise Article 1074.02(a) of the Standard Specifications to read:

The pedestrian push-button housing shall be constructed of aluminum alloy according to ASTM B 308 6061-T6 and powder coated yellow, unless otherwise noted on the plans. The housing shall be furnished with suitable mounting hardware.

Revise Article 1074-02(e) of the Standard Specifications to read:

Stations shall be designed to be mounted directly to a post, mast arm pole or wood pole. The station shall be aluminum and shall accept a 3 inch (75mm) round push-button assembly and a regulatory pedestrian instruction sign according to MUTCD, sign series R10-3e 9 x 15 inch sign with arrow(s) for a count-down pedestrian signal. The pedestrian station size without count-down pedestrian signals shall accommodate a MUTCD sign series R10-3b or R10-3d 9 x 12 inch sign with arrow(s).

Add the following to Article 1074.02(a) of the Standard Specifications:

- (f) Location. Pedestrian push-buttons and stations shall be mounted directly to a post, mast arm pole or wood pole as shown on the plans and shall be fully accessible from a paved or concrete surface. See the District's Detail sheets for orientation and mounting details.

CONTROLLER CABINET AND PERIPHERAL EQUIPMENT.

Add the following to Article 1074.03 of the Standard Specifications:

- (a) (6) Cabinets shall be designed for NEMA TS2 Type 1 operation. All cabinets shall be pre-wired for a minimum of eight (8) phases of vehicular, four (4) phases of pedestrian and four (4) phases of overlap operation.
- (b) (5) Cabinets – Provide 1/8" (3.2 mm) thick unpainted aluminum alloy 5052-H32. The surface shall be smooth, free of marks and scratches. All external hardware shall be stainless steel.
- (b) (6) Controller Harness – Provide a TS2 Type 2 "A" wired harness in addition to the TS2 Type 1 harness.
- (b) (7) Surge Protection – Plug-in type EDCO SHA-1250 or Atlantic/Pacific approved equal.
- (b) (8) BIU – Containment screw required.
- (b) (9) Transfer Relays – Solid state or mechanical flash relays are acceptable.
- (b) (10) Switch Guards – All switches shall be guarded.
- (b) (11) Heating – One (1) 200 watt, thermostatically-controlled, Hoffman electric heater, or approved equivalent.
- (b) (12) Lighting – One (1) LED Panel shall be placed inside the cabinet top panel and one (1) LED Panel shall be placed on each side of the pull-out drawer/shelf assembly located beneath the controller support shelf. The LED Panels shall

- be controlled by a wall switch. Relume Traffic Control Box LED Panels and power supply or approved equivalent.
- (b) (13) The cabinet shall be equipped with a pull-out drawer/shelf assembly. A 1 ½ inch (38mm) deep drawer shall be provided in the cabinet, mounted directly beneath the controller support shelf. The drawer shall have a hinged top cover and shall be capable of accommodating one (1) complete set of cabinet prints and manuals. This drawer shall support 50 lbs. (23 kg) in weight when fully extended. The drawer shall open and close smoothly. Drawer dimensions shall make maximum use of available depth offered by the controller shelf and be a minimum of 24 inches (610mm) wide.
 - (b) (14) Plan & Wiring Diagrams – 12" x 16" (3.05mm x 4.06mm) moisture sealed container attached to door.
 - (b) (15) Detector Racks – Fully wired and labeled for four (4) channels of emergency vehicle pre-emption and sixteen channels (16) of vehicular operation.
 - (b) (16) Field Wiring Labels – All field wiring shall be labeled.
 - (b) (17) Field Wiring Termination – Approved channel lugs required.
 - (b) (18) Power Panel – Provide a nonconductive shield.
 - (b) (19) Circuit Breaker – The circuit breaker shall be sized for the proposed load but shall not be rated less than 30 amps.
 - (b) (20) Police Door – Provide wiring and termination for plug in manual phase advance switch.
 - (b) (21) Railroad Pre-Emption Test Switch – Eaton 8830K13 SHA 1250 or equivalent.

RAILROAD, FULL-ACTUATED CONTROLLER AND CABINET.

Controller shall comply with Article 1073.01 as amended in these Traffic Signal Special Provisions.

Controller Cabinet and Peripheral Equipment shall comply with Article 1074.03 as amended in these Traffic Signal Special Provisions.

Add the following to Articles 1073.01 (c) (2) and 1074.03 (a) (5) (e) of the Standard Specifications:

Controllers and cabinets shall be new and NEMA TS2 Type 1 design.

A method of monitoring and/or providing redundancy to the railroad preemptor input to the controller shall be included as a component of the Railroad, Full Actuated Controller and Cabinet installation and be verified by the traffic signal equipment supplier prior to installation.

Railroad interconnected controllers and cabinets shall be assembled only by an approved traffic signal equipment supplier. All railroad interconnected (including temporary railroad interconnect) controllers and cabinets shall be new, built, tested and approved by the controller equipment vendor, in the vendor's District One facility, prior to field installation. The vendor shall provide the technical equipment and assistance as required by the Engineer to fully test this equipment.

UNINTERRUPTIBLE POWER SUPPLY (UPS).

Revise Article 1074.04(a)(1) of the Standard Specifications to read:

The UPS shall be line interactive and provide voltage regulation and power conditioning when utilizing utility power. The UPS shall be sized appropriately for the intersection's normal traffic signal operating connected load, plus 20 percent (20%). The total connected traffic signal load shall not exceed the published ratings for the UPS. The UPS shall provide a minimum of six (6) hours of normal operation run-time for signalized intersections with LED type signal head optics at 77 °F (25 °C) (minimum 700 W/1000 VA active output capacity, with 90 percent minimum inverter efficiency).

Revise the first paragraph of Article 1074.04(a)(3) of the Standard Specifications to read:

The UPS shall have a minimum of four (4) sets of normally open (NO) and normally closed (NC) single-pole double-throw (SPDT) relay contact closures, available on a panel mounted terminal block or locking circular connectors, rated at a minimum 120 V/1 A, and labeled so as to identify each contact according to the plans.

Revise Article 1074.04(a)(10) of the Standard Specifications to read:

The UPS shall be compatible with the District's approved traffic controller assemblies utilizing NEMA TS 1 or NEMA TS 2 controllers and cabinet components for full time operation.

Revise Article 1074.04(a)(17) of the Standard Specifications to read:

When the intersection is in battery backup mode, the UPS shall bypass all internal cabinet lights, ventilation fans, cabinet heaters, service receptacles, any lighted street name signs, any automated enforcement equipment and any other devices directed by the Engineer.

Revise Article 1074.04(b)(2)b of the Standard Specifications to read:

Batteries, inverter/charger and power transfer relay shall be housed in a separate NEMA Type 3R cabinet. The cabinet shall be Aluminum alloy, 5052-H32, 0.125-inch thick and have a natural mill finish.

Revise Article 1074.04(b)(2)c of the Standard Specifications to read:

No more than three batteries shall be mounted on individual shelves for a cabinet housing six batteries and no more than four batteries per shelf for a cabinet housing eight batteries.

Revise Article 1074.04(b)(2)e of the Standard Specifications to read:

The battery cabinet housing shall have the following nominal outside dimensions: a width of 25 in. (785 mm), a depth of 16 in. (440 mm), and a height of 41 to 48 in. (1.1 to 1.3 m). Clearance between shelves shall be a minimum of 10 in. (250 mm).

UPS

End of paragraph 1074.04(b) (2)e

The door shall be equipped with a two position doorstop, one a 90° and one at 120°.

Revise Article 1074.04(b)(2)g of the Standard Specifications to read:

The door shall open to the entire cabinet, have a neoprene gasket, an Aluminum continuous piano hinge with stainless steel pin, and a three point locking system. The cabinet shall be provided with a main door lock which shall operate with a traffic industry conventional No. 2 key. Provisions for padlocking the door shall be provided.

Add the following to Article 1074.04(b)(2) of the Standard Specifications:

- j. The battery cabinet shall have provisions for an external generator connection.

Add the following to Article 1074.04(c) of the Standard Specifications:

- (8) The UPS shall include a tip or kill switch installed in the battery cabinet, which shall completely disconnect power from the UPS when the switch is manually activated.
- (9) The UPS shall incorporate a flanged electric generator inlet for charging the batteries and operating the UPS. The generator connector shall be male type, twist-lock, rated as 15A, 125VAC with a NEMA L5-15P configuration and weatherproof lift cover plate (Hubbell model HBL4716C or approved equal). Access to the generator inlet shall be from a secured weatherproof lift cover plate or behind a locked battery cabinet police panel.

Battery System.

Revise Article 1074.04(d)(3) of the Standard Specifications to read:

All batteries supplied in the UPS shall be either gel cell or AGM type, deep cycle, completely sealed, prismatic leadcalcium based, silver alloy, valve regulated lead acid (VRLA) requiring no maintenance. All batteries in a UPS installation shall be the same type; mixing of gel cell and AGM types within a UPS installation is not permitted.

Revise Article 1074.04(d)(4) of the Standard Specifications to read:

Batteries shall be certified by the manufacturer to operate over a temperature range of -13 to 160 °F (-25 to + 71 °C) for gel cell batteries and -40 to 140 °F (-40 to + 60 °C) for AGM type batteries.

Add the following to Article 1074.04(d) of the Standard Specifications:

- (9) The UPS shall consist of an even number of batteries that are capable of maintaining normal operation of the signalized intersection for a minimum of six hours. Calculations shall be provided showing the number of batteries of the type supplied that are needed to satisfy this requirement. A minimum of four batteries shall be provided.

Add the following to the Article 1074.04 of the Standard Specifications:

- (e) Warranty. The warranty for an uninterruptible power supply (UPS) shall cover a minimum of two years from date the equipment is placed in operation; however, the batteries of the UPS shall be warranted for full replacement for a minimum of five years from the date the traffic signal and UPS are placed into service.

ELECTRIC CABLE.

Delete "or stranded, and No. 12 or" from the last sentence of Article 1076.04 (a) of the Standard Specifications.

Add the following to the Article 1076.04(d) of the Standard Specifications:

Service cable may be single or multiple conductor cable.

TRAFFIC SIGNAL POST.

Add the following to Article 1077.01 (d) of the Standard Specifications:

All posts and bases shall be steel and hot dipped galvanized. If the Department approves painting, powder coating by the manufacturer will be required over the galvanization in accordance with TRAFFIC SIGNAL PAINTING in Division 800 of these specifications.

PEDESTRIAN PUSH-BUTTON POST.

Add the following to Article 1077.02(b) of the Standard Specifications:

All posts and bases shall be steel and hot-dipped galvanized. If the Department approves painting, powder coating by the manufacturer will be required over the galvanization in accordance with Traffic Signal Painting in Division 800 of these specifications.

MAST ARM ASSEMBLY AND POLE.

Add the following to Article 1077.03 (a) of the Standard Specifications:

Traffic signal mast arms shall be one piece construction, unless otherwise approved by the Engineer. All poles shall be galvanized. If the Department approves painting, powder coating by the manufacturer will be required over the galvanization in accordance with with TRAFFIC SIGNAL PAINTING in Division 800 of these specifications.

The shroud shall be of sufficient strength to deter pedestrian and vehicular damage. The shroud shall be constructed and designed to allow air to circulate throughout the mast arm but not allow infestation of insects or other animals, and such that it is not hazardous to probing fingers and feet. All mounting hardware shall be stainless steel.

LIGHT EMITTING DIODE (LED) TRAFFIC SIGNAL HEAD.

Add the following to Section 1078 of the Standard Specifications:

General.

All signal and pedestrian heads shall provide 12" (300 mm) displays with glossy yellow or black polycarbonate housings. All head housings shall be the same color (yellow or black) at the intersection. For new signalized intersections and existing signalized intersections where all signal and/or pedestrian heads are being replaced, the proposed head housings shall be black.

Where only selected heads are being replaced, the proposed head housing color (yellow or black) shall match existing head housings. Connecting hardware and mounting brackets shall be polycarbonate (black). A corrosion resistant anti-seize lubricant shall be applied to all metallic mounting bracket joints, and shall be visible to the inspector at the signal turn-on. Post top mounting collars are required on all posts, and shall be constructed of the same material as the brackets.

Pedestrian signal heads shall be furnished with the international symbolic "Walking Person" and "Upraised Palm" displays. Egg crate sun shields are not permitted.

Signal heads shall be positioned according to the "District One Standard Traffic Signal Design Details."

LED signal heads (All Face and Section Quantities), (All Mounting Types) shall conform fully to the requirements of Articles 1078.01 and 1078.02 of the Standard Specifications amended herein.

1. The LED signal modules shall be replaced or repaired if an LED signal module fails to function as intended due to workmanship or material defects within the first 60 months from the date of delivery. LED signal modules which exhibit luminous intensities less than the minimum values specified in Table 1 of the ITE Vehicle Traffic Control Signal Heads: Light Emitting Diode (LED) Circular Signal Supplement (June 27, 2005) [VTSCH], or applicable successor ITE specifications, or show signs of entrance of moisture or contaminants within the first 60 months of the date of delivery shall be replaced or repaired. The manufacturer's written warranty for the LED signal modules shall be dated, signed by an Officer of the company and included in the product submittal to the State.

(a) Physical and Mechanical Requirements

1. Modules can be manufactured under this specification for the following faces:
 - a. 12 inch (300 mm) circular, multi-section
 - b. 12 inch (300 mm) arrow, multi-section
 - c. 12 inch (300 mm) pedestrian, 2 sections
2. The maximum weight of a module shall be 4 lbs. (1.8 kg).
3. Each module shall be a sealed unit to include all parts necessary for operation (a printed circuit board, power supply, a lens and gasket, etc.), and shall be weather proof after installation and connection.
4. Material used for the lens and signal module construction shall conform to ASTM specifications for the materials.
5. The lens of the module shall be tinted with a wavelength-matched color to reduce sun phantom effect and enhance on/off contrast. The tinting shall be uniform across the lens face. Polymeric lens shall provide a surface coating or chemical surface treatment applied to provide abrasion resistance. The lens of the module shall be integral to the unit, convex with a smooth outer surface and made of plastic. The lens shall have a textured surface to reduce glare.

6. The use of tinting or other materials to enhance ON/OFF contrasts shall not affect chromaticity and shall be uniform across the face of the lens.
7. Each module shall have a symbol of the type of module (i.e. circle, arrow, etc.) in the color of the module. The symbol shall be 1 inch (25.4 mm) in diameter. Additionally, the color shall be written out in 1/2 inch (12.7mm) letters next to the symbol.

(b) Photometric Requirements

1. The minimum initial luminous intensity values for the modules shall conform to the values in Table 1 of the VTCSH (2005) for circular signal indications, and as stated in Table 3 of these specifications for arrow and pedestrian indications at 25 °C.
2. The modules shall meet or exceed the illumination values stated in Articles 1078.01 and 1078.02 the Standard Specifications for circular signal indications, and Table 3 of these specifications for arrow and pedestrian indications, throughout the useful life based on normal use in a traffic signal operation over the operating temperature range.
3. The measured chromaticity coordinates of the modules shall conform to the chromaticity requirements of Section 4.2 of the VTCSH (2005) or applicable successor ITE specifications.
4. The LEDs utilized in the modules shall be AlInGaP technology for red, yellow, Portland orange (pedestrian) and white (pedestrian) indications, and GaN for green indications, and shall be the ultra bright type rated for 100,000 hours of continuous operation from -40 °C to +74 °C.

(c) Electrical

1. Maximum power consumption for LED modules is per Table 2.
2. Operating voltage of the modules shall be 120 VAC. All parameters shall be measured at this voltage.
3. The modules shall be operationally compatible with currently used controller assemblies (solid state load switches, flashers, and conflict monitors).
4. When a current of 20 mA AC (or less) is applied to the unit, the voltage read across the two leads shall be 15 VAC or less.
5. The LED modules shall provide constant light output under power. Modules with dimming capabilities shall have the option disabled or set on a non-dimming operation.
6. The individual LEDs shall be wired such that a catastrophic loss or the failure of one or more LED will not result in the loss of the entire module.

(d) Retrofit Traffic Signal Module

1. The following specification requirements apply to the Retrofit module only. All general specifications apply unless specifically superseded in this section.

2. Retrofit modules can be manufactured under this specification for the following faces:
 - a. 12 inch (300 mm) circular, multi-section
 - b. 12 inch (300 mm) arrow, multi-section
 - c. 12 inch (300 mm) pedestrian, 2 sections
 3. Each Retrofit module shall be designed to be installed in the doorframe of a standard traffic signal housing. The Retrofit module shall be sealed in the doorframe with a one-piece EPDM (ethylene propylene rubber) gasket.
 4. The maximum weight of a Retrofit module shall be 4 lbs. (1.8 kg).
 5. Each Retrofit module shall be a sealed unit to include all parts necessary for operation (a printed circuit board, power supply, a lens and gasket, etc.), and shall be weather proof after installation and connection.
 6. Electrical conductors for modules, including Retrofit modules, shall be 39.4 inches (1m) in length, with quick disconnect terminals attached.
 7. The lens of the Retrofit module shall be integral to the unit, shall be convex with a smooth outer surface and made of plastic or of glass.
- (e) The following specification requirements apply to the 12 inch (300 mm) arrow module only. All general specifications apply unless specifically superseded in this section.
1. The arrow module shall meet specifications stated in Section 9.01 of the Equipment and Material Standards of the Institute of Transportation Engineers (November 1998) [ITE Standards], Chapter 2 (Vehicle Traffic Control Signal Heads) or applicable successor ITE specifications for arrow indications.
 2. The LEDs arrow indication shall be a solid display with a minimum of three (3) outlining rows of LEDs and at least one (1) fill row of LEDs.
- (f) The following specification requirement applies to the 12 inch (300 mm) programmed visibility (PV) module only. All general specifications apply unless specifically superseded in this section.
1. The LED module shall be a module designed and constructed to be installed in a programmed visibility (PV) signal housing without modification to the housing.
- (g) The following specification requirements apply to the 12 inch (300 mm) Pedestrian module only. All general specifications apply unless specifically superseded in this section.
1. Each pedestrian signal LED module shall provide the ability to actuate the solid upraised hand and the solid walking person on one 12 inch (300mm) section.
 2. Two (2) pedestrian sections shall be installed. The top section shall be wired to illuminate only the upraised hand and the bottom section shall be the walking man.
 3. "Egg Crate" type sun shields are not permitted. All figures must be a minimum of 9 inches (225mm) in height and easily identified from a distance of 120-feet (36.6m).

LIGHT EMITTING DIODE (LED) PEDESTRIAN COUNTDOWN SIGNAL HEAD.

Add the following to Article 1078.02 of the Standard Specifications:

General.

1. The module shall operate in one mode: Clearance Cycle Countdown Mode Only. The countdown module shall display actual controller programmed clearance cycle and shall start counting when the flashing clearance signal turns on and shall countdown to "0" and turn off when the steady Upraised Hand (symbolizing Don't Walk) signal turns on. Module shall not have user accessible switches or controls for modification of cycle.
2. At power on, the module shall enter a single automatic learning cycle. During the automatic learning cycle, the countdown display shall remain dark.
3. The module shall re-program itself if it detects any increase or decrease of Pedestrian Timing. The counting unit will go blank once a change is detected and then take one complete pedestrian cycle (with no counter during this cycle) to adjust its buffer timer.
4. The module shall allow for consecutive cycles without displaying the steady Upraised Hand.
5. The module shall recognize preemption events and temporarily modify the crossing cycle accordingly.
6. If the controller preempts during the Walking Person (symbolizing Walk), the countdown will follow the controller's directions and will adjust from Walking Person to flashing Upraised Hand. It will start to count down during the flashing Upraised Hand.
7. If the controller preempts during the flashing Upraised Hand, the countdown will continue to count down without interruption.
8. The next cycle, following the preemption event, shall use the correct, initially programmed values.
9. If the controller output displays Upraised Hand steady condition and the unit has not arrived to zero or if both the Upraised Hand and Walking Person are dark for some reason, the unit suspends any timing and the digits will go dark.
10. The digits will go dark for one pedestrian cycle after loss of power of more than 1.5 seconds.
11. The countdown numerals shall be two (2) "7 segment" digits forming the time display utilizing two rows of LEDs.
12. The LED module shall meet the requirements of the Institute of Transportation Engineers (ITE) LED purchase specification, "Pedestrian Traffic Control Signal

Indications - Part 2: LED Pedestrian Traffic Signal Modules," or applicable successor ITE specifications, except as modified herein.

13. The LED modules shall provide constant light output under power. Modules with dimming capabilities shall have the option disabled or set on a non-dimming operation.
14. In the event of a power outage, light output from the LED modules shall cease instantaneously.
15. The LEDs utilized in the modules shall be AllnGaP technology for Portland Orange (Countdown Numerals and Upraised Hand) and GaN technology for Lunar White (Walking Person) indications.
16. The individual LEDs shall be wired such that a catastrophic loss or the failure of one or more LED will not result in the loss of the entire module.

Electrical.

1. Maximum power consumption for LED modules is 29 watts.
2. The measured chromaticity shall remain unchanged over the input line voltage range listed of 80 VAC to 135 VAC.

TRAFFIC SIGNAL BACKPLATE.

Delete 1st sentence of Article 1078.03 of the Standard Specifications and add "All backplates shall be aluminum and louvered".

Add the following to the third paragraph of Article 1078.03 of the Standard Specifications. The reflective backplate shall not contain louvers.

Delete second sentence of the fourth paragraph of Article 1078.03 of the Standard Specifications.

Add the following to the fourth paragraph of Article 1078.03 of the Standard Specifications:

When retro reflective sheeting is specified, it shall be Type ZZ sheeting according to Article 1091.03 and applied in preferred orientation for the maximum angularity according to the manufacturer's recommendations. The retro reflective sheeting shall be installed under a controlled environment at the manufacturer/supplier before shipment to the contractor. The aluminum backplate shall be prepared and cleaned, following recommendations of the retro reflective sheeting manufacturer.

INDUCTIVE LOOP DETECTOR.

Add the following to Article 1079.01 of the Standard Specifications:

Contracts requiring new cabinets shall provide for rack mounted detector amplifier cards. Detector amplifiers shall provide LCD displays with loop frequency, inductance, and change of inductance readings.

ILLUMINATED SIGN, LIGHT EMITTING DIODE.

Delete last sentence of Article 1084.01(a) and add "Mounting hardware shall be black polycarbonate or galvanized steel and similar to mounting Signal Head hardware and bracket specified herein and shall provide tool free access to the interior."

Revise the second paragraph of Article 1084.01(a) to read:

The exterior surface of the housing shall be acid-etched and shop painted with one coat of zinc-chromate primer and two coats of exterior enamel. The housing shall be the same color (yellow or black) to match the existing or proposed signal heads. The painting shall be according to Section 851.

Add the following to Article 1084.01 (b) of the Standard Specifications:

The message shall be formed by rows of LEDs. The sign face shall be 24 inches (600 mm) by 24 inches (600 mm).

Add the following to Article 1084.01 of the Standard Specifications:

- (e) The light emitting diode (LED) blank out signs shall be manufactured by National Sign & Signal Company, or an approved equal and consist of a weatherproof housing and door, LEDs and transformers.

ILLUMINATED STREET NAME SIGN

The illuminate street name sign shall be as follows.

(a) Description.

The LEDs shall be white in color and utilize InGaN or UV thermally efficient technology. The LED Light Engines shall be designed to fit inside a standard fluorescent illuminated street sign housing in lieu of fluorescent lamps and ballasts or a slim line type housing. The LED internally-illuminated street name sign shall display the designated street name clearly and legibly in the daylight hours without being energized and at night when energized. The sign assembly shall consist of a four-, six-, or eight-foot aluminum housing. White translucent 3M DG³ reflective sheeting sign faces with the street name applied in 3M/Scotchlite Series 1177 or current 3M equivalent transparent green shall be installed in hinged doors on the side of the sign for easy access to perform general cleaning and maintenance operations. Illumination shall occur with LED Light Engine as specified.

(b) Environmental Requirements.

The LED lamp shall be rated for use in the ambient operating temperature range of -40 to +50°C (-40 to +122°F) for storage in the ambient temperature range of -40 to +75°C (-40 to +167°F).

(c) General Construction.

1. The LED Light Engine shall be a single, self-contained device, for installation in an existing street sign housing. The power supply must be designed to fit and mounted on the inside wall at one end of the street sign housing. The LED Light Engine shall be

mounted within the inner top portion of the housing and no components of the light source shall sit between the sign faces.

2. The assembly and manufacturing processes of the LED Light Engine shall be designed to ensure that all LED and electronic components are adequately supported to withstand mechanical shocks and vibrations in compliance with the specifications of the ANSI, C136.31-2001 standards.

(d) Mechanical Construction.

1. The sign shall be constructed using a weatherproof, aluminum housing consisting of an extruded aluminum top with a minimum thickness of .140" x 10 3/4" deep (including the drip edge). The extruded aluminum bottom is .094" thick x 5 7/8" deep. The ends of the housing shall be cast aluminum with a minimum thickness of .250". A six-foot sign shall be 72 5/8" long and 22 5/16" tall and not weigh more than 77 pounds. An eight-foot sign shall be 96 5/8" long and 22 5/16" tall and not weigh more than 92 pounds. All corners are continuous TIG (Tungsten Inert Gas) welded to provide a weatherproof seal around the entire housing.
2. The door shall be constructed of extruded aluminum. Two corners are continuous TIG welded with the other two screwed together to make one side of the door removable for installation of the sign face. The door is fastened to the housing on the bottom by a full length, .040" x 1 1/8" open stainless steel hinge. The door shall be held secure onto a 1" wide by 5/32" thick neoprene gasket by three (six total for two-way sign) quarter-turn fasteners to form a watertight seal between the door and the housing.
3. The sign face shall be constructed of .125" white translucent polycarbonate. The letters shall be 8" upper case and 6" lower case. The sign face legend background shall consist of 3M/Scotchlite Series 4090T or current equivalent 3M translucent DG³ white VIP (Visual Impact Performance) diamond grade sheeting (ATSM Type 9) and 3M/Scotchlite Series 1177 or current 3M equivalent transparent green acrylic EC (electronic cut-able) film applied to the front of the sign face. The legend shall be framed by a white polycarbonate border. A logo symbol and/or name of the community may be included with approval of the Engineer.
4. All surfaces of the sign shall be etched and primed in accordance to industry standards before receiving appropriate color coats of industrial enamel.
5. All fasteners and hardware shall be corrosion resistant stainless steel. No tools are required for routine maintenance.
6. All wiring shall be secured by insulated wire compression nuts.
7. A wire entrance junction box shall be supplied with the sign assembly. The box may be supplied mounted to the exterior or interior of the sign and provide a weather tight seal.
8. A photoelectric switch shall be mounted in the control cabinet to control lighting functions for day and night display. Each sign shall be individually fused.
9. Brackets and Mounting: LED internally-illuminated street name signs will be factory drilled to accommodate mast arm two-point support assembly mounting brackets.

(e) Electrical.

1. Photocell shall be rated 105-305V, turn on at 1.5 fcs. with a 3-5 second delay. A manufacturer's warranty of six (6) years shall be provided. Power consumption shall be no greater than 1 watt at 120V.
2. The LED Light Engine shall operate from a 60 +/- 3 cycle AC line power over a voltage range of 80 to 135 Vac rms. Fluctuations in line voltage over the range of 80 to 135 Vac shall not affect luminous intensity by more than +/- 10%.
3. Total harmonic distortion induced into the AC power line by the LED Light Engine, operated at a nominal operating voltage, and at a temperature of +25°C (+77°F), shall not exceed 20%.
4. The LED Light Engine shall be cycled ON and OFF with a photocell as shown on the detail sheet and shall not exceed the following maximum power values:

4-Foot Sign	60 W
6-Foot Sign	90 W
8-Foot Sign	120 W

The signs shall not be energized when traffic signals are powered by an alternate energy source such as a generator or uninterruptable power source (UPS). The signs shall be connected to the generator or UPS bypass circuitry.

(f) Photometric Requirements.

1. The entire surface of the sign panel shall be evenly illuminated. The average maintained luminous intensity measured across the letters, operating under the conditions defined in Environmental Requirements and Wattage Sections shall be of a minimum value of 100 cd/m².
2. The manufacturer shall make available independent laboratory test results to verify compliance to Voltage Range and Luminous Intensity Distribution Sections.
3. Twelve (12) 1.25 watt LED units shall be mounted on 1-inch x 22-inch metal core printed circuit boards (MCPCB). The viewing angle shall be 120 degrees. LED shall have a color temperature of 5200k nominal, CRI of 80 with a life expectancy of 75,000 hrs.

(g) Quality Assurance.

The LED Light Engine shall be manufactured in accordance with a vendor quality assurance (QA) program. The production QA shall include statistically controlled routine tests to ensure minimum performance levels of the LED Light Engine build to meet this specification. QA process and test result documentations shall be kept on file for a minimum period of seven (7) years. The LED Light Engine that does not satisfy the production QA testing performance requirements shall not be labeled, advertised, or sold as conforming to these specifications. Each LED Light Engine shall be identified by a manufacturer's serial number for warranty purposes. LED Light Engines shall be replaced or repaired if they fail to function as intended due to workmanship or material defects within the first sixty (60) months from the date of acceptance. LED Light Engines that exhibit luminous intensities less than the minimum value specified in Photometric Section within the first thirty-six (36) months from the date of acceptance shall be replaced or repaired.

STRUCTURE GEOTECHNICAL REPORT

Red Gate Road Bridge over Fox River

Red Gate Road Bridge Project

IDOT Job: P-91-322-04

Proposed SN 045-6024

Kane County, Illinois

STRUCTURAL ENGINEER:

Mr. Abdou Hossam, P.E., S.E.

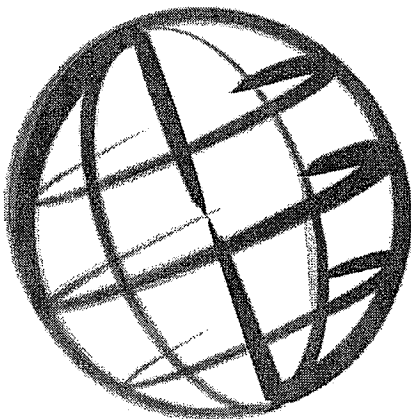
**Alfred Benesch & Company
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Prepared by:

**Geo Services, Inc.
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(630) 305-9186**

JOB NO. 10191

**July 2011
Revised October 2011**





July 18, 2011
Revised October 7, 2011

Alfred Benesch & Company
205 N. Michigan Avenue, Suite 2400
Chicago, Illinois 60601

Attention: Mr. Hossam Abdou, P.E., S.E.

Job No. 10191

Re: Structural Geotechnical Report
Red Gate Road Bridge over the Fox River
Red Gate Road Bridge Project
Proposed SN 045-6024
Section Number: 04-00092-00-BR
IDOT Job Number: P-91-322-04
Kane County, Illinois

Dear Mr. Abdou:

The following report presents the geotechnical analysis and recommendations for the proposed bridge structure carrying Red Gate Road over the existing Fox River Trail. A total of seven (7) structural soil borings (BR-02 through BR-08) were completed at the project site by Geo Services, Inc. (GSI). Copies of these boring logs are included in this report.


If there are any questions regarding the information submitted herein, please do not hesitate to contact us.

Very truly yours,

GEO SERVICES, Inc.


Alex Barlan, P.E.
Project Engineer


Andrew J. Ptak, P.E.
Office Manager


Dixon O'Brien, P.E.
Vice President

enc.

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SECTION 01: INTRODUCTION

This report presents the results of the geotechnical investigation for the proposed bridge (SN 045-6024) over the Fox River for the Red Gate Road Bridge Project, IDOT Project Number: P-91-322-04. The results of the seven (7) structure borings (BR-02 and BR-08) completed by Geo Services, along with boring location diagram and profiles, are included with this report.

Boring locations were selected by Geo Services, Inc. and were reviewed and approved by Alfred Benesch & Company and the Illinois Department of Transportation (IDOT). Borings locations and elevations were surveyed in the field by a surveyor company by Alfred Benesch & Company, and the as-drilled locations are illustrated on the boring location diagram in Appendix B. Elevations were determined from topographic information provided by Benesch and are shown on the boring logs.

Boring BR-01 was eliminated after it was determined that the Pier 1 area was inaccessible to drill-rig equipment and nearby BR-02 can be used for analysis. Borings were previously performed by TSC in the area of the West Abutment. Boring B-2, drilled by TSC, is included in the report to produce recommendations for the West Abutment.

This report includes recommendations pertaining to the design and construction of the new bridge, earth embankment, description of soil and groundwater conditions, general construction considerations for the site, location diagram, soil profiles and boring logs.

SECTION 02: PROJECT DESCRIPTION

It is proposed that the new bridge (SN 045-6024) will have a varied bridge width from approximately 36' (out-to-out) and will be an eight-span bridge. The overall length will be approximately 1,148' supported on two stub abutments with slope and wing walls and seven piers. The estimated factored reactions at the foundation structures provided by Benesch are 125 kips/foot at the piers and 62/kips per foot at the abutments. The proposed footing (pile cap) elevations are shown on the following Table 1 – Footing/Design Scour Elevations. A map of the site location can be found on the next page. SN 045-6024 is located at the approximate station of 115+15.

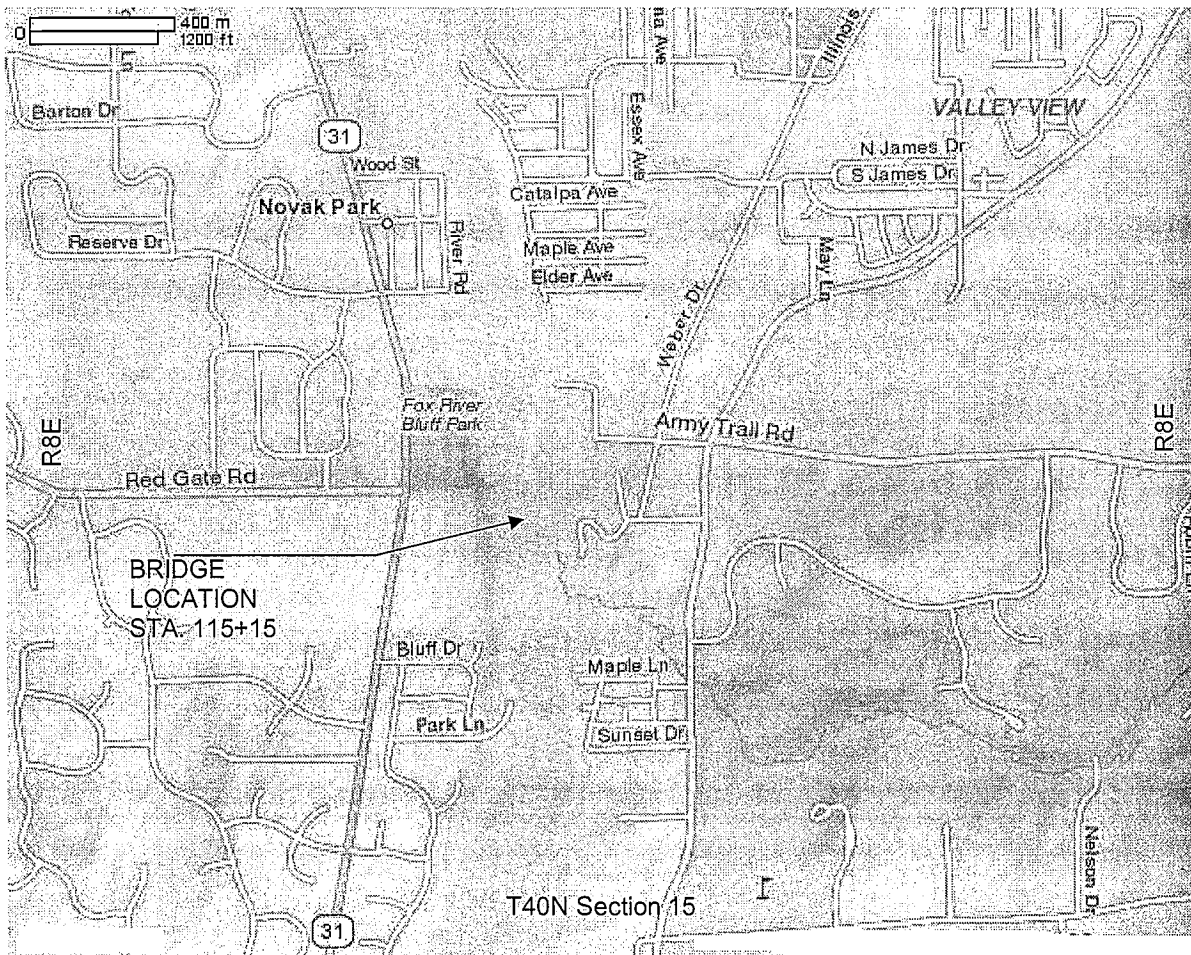
Table 1 – Footing/Design Scour Elevations

Location	West Abut	Pier 1	Pier 2	Pier 3	Pier 4	Pier 5	Pier 6	Pier 7	East Abut
Elevation	720.9	685.3	676.3	674.9	678.5	683.0	684.2	686.2	708.8

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLANS FOR PROPOSED

Section No.: 04-00092-00-BR
Red Gate Road Bridge Project
Kane County, Illinois

T40N Section 15
3rd P.M.



SECTION 03: SUBSURFACE INVESTIGATION PROCEDURES

Borings BR-05 through BR-08 were performed on land during the month of December, 2010, with a truck-mounted drilling rig equipped with a CME automatic hammer, and were advanced by means of hollow stem augers to a depth of 10 feet and rotary-drilling techniques to completion. Representative soil samples were obtained employing split spoon sampling procedures in accordance with AASHTO Method T-206. Samples obtained in the field were returned to our laboratory for further examination and testing.

Borings BR-02 through BR-04 were performed on the Fox River with the use of a barge during the month of May, 2011, with an ATV track-mounted drilling rig equipped with a Diedrich automatic hammer. Borings were advanced by means of hollow stem augers through the barge deck and water until sufficiently embedded into the riverbed, at which point rotary-drilling techniques were employed until boring completion. Representative soil samples were obtained employing split spoon sampling procedures in accordance with AASHTO Method T-206. Samples obtained in the field were returned to our laboratory for further examination and testing.

Split spoon sampling involves driving a 2.0-inch outside diameter split-barrel sampler into the soil with a 140-pound weight falling freely through a distance of 30 inches. Blow counts are recorded at 6" intervals and the blow counts are shown on the boring logs. The number of blows required to advance the sampler the last 12 inches is termed the Standard Penetration Resistance (N). The N value is an indication of the relative density of the soil.

SECTION 04: LAB TESTING PROGRAM

The test procedures were performed in accordance with test procedures discussed in the IDOT Geotechnical Manual. All split-spoon samples obtained from the drilling operation were visually classified in the field. Cohesive samples were tested for unconfined compressive strength using an IDOT modified RIMAC test device and/or calibrated penetrometer in the field.

The soil testing program included performing water content, density and either unconfined compression and/or calibrated penetrometer tests on the cohesive samples recovered. These tests were performed upon representative portions of the samples obtained in the field. The results of the above testing, along with a visual classification of the material based upon both the Illinois textural classification and the AASHTO Soil Classification System, are indicated on the boring logs.

SECTION 05: SUBSURFACE CONDITIONS

Borings BR-02 through BR-04 were drilled in the Fox River and indicated medium dense to dense sand and gravel soils to completion at an end-of-boring depth of approximately 90 feet (elevation of 597). Moisture contents of the sand and gravel soils were within the range of 4% to 20% with an average of 10%. BR-04 was the exception; BR-04 had stiff clay soils from an elevation range of 680 to 670 (moisture contents from 29% to 37% with an average of 31%).

Borings BR-05 through BR-07 were drilled on land near a surface elevation of 690. Surficial soils typically consisted of approximately 5 feet of topsoil and medium stiff to stiff clay soils (moisture contents within the range of 11% to 31% with an average of 18%). Below the surficial soils, borings typically encountered approximately 10 feet of medium dense to dense sand, gravel and loam soils (moisture contents from 10% to 22% with an average of 18%) and 10 feet of medium stiff to stiff clay soils (moisture contents from 7% to 34% with an average of 22%). Underlying these soils, the boring logs indicated medium dense to dense sand and gravel soils to completion at an end-of-boring depth of approximately 90 feet (elevation of 604). Moisture contents of the sand and gravel soils were within the range of 4% to 20% with an average of 10%.

Boring BR-08 was drilled in the location of the proposed east abutment at an approximate elevation of 708 feet. From the boring logs, medium dense to very dense sands and gravels were encountered to completion at an end-of-boring depth of approximately 85 feet (elevation of 620). 2.5-ft thick, very stiff to hard clay soils were encountered around the elevation of 675 and 662 feet. Sand and gravel moisture contents were within the moisture content range of 2% and 19% with an average of 12%. The clay loam soils had a moisture content of 14% and 27%.

SECTION 06: WATER TABLE CONDITIONS

Boring BR-02 to BR-04 were performed on the Fox River. The Fox River surface water level was situated at an approximate water level of 686 with a stream bed elevation range of 680 to 682. Borings BR-05 through BR-08 were performed on land. Due to the nature of rotary-wash drilling, it is not possible to attain water levels below 10 feet of depth or after drilling. When water was encountered during drilling, it was encountered at elevation 786. Fluctuations in the amount of water accumulated and in the hydrostatic water table can be anticipated depending on variations in precipitation and surface runoff and is directly tied to the nearby Fox River.

SECTION 07: ANALYSIS

Seismic Conditions

According to the AASHTO LRFD Bridge Design Specification 2007 (with 2010 Interim), the project site has a horizontal Response Spectral Acceleration of 0.037 at a period of 1.0 second and 5% critical dampening (S_1) and 0.095 at a period of 0.2 seconds and 5% critical dampening (S_s), Site Class: D and is designated as an area with a Seismic Performance Zone = 1. This results in a Design Spectral Acceleration at 1.0 second = 0.089 (S_{D1}) and at 0.2 seconds = 0.152 (S_{Ds}) according to the AASHTO LRFD Bridge Design Specification 2007 (with 2010 Interim). The project site is considered to be in a low seismic area and is considered a non-extreme event. Liquefiable layers and down drag are not expected to impact the design of the SN 045-6024.

Slope Stability

A worst case scenario of a 10-foot high slope (3H:1V) with an additional 10 feet of fill (considered vertical) above the abutment invert elevation has been used for the slope stability analysis. The east abutment is to have approximately 5 feet of fill to raise the existing grade to the invert elevation of the abutment, and SB-08 (worst case scenario) has been used for analysis. Slope stability has been analyzed using X-Stabl slope analysis program using both the Bishop and Janbu methods of analysis. A factor of safety greater than 1.8 was calculated. We recommend a factor of safety of 1.8 be used for design. No slope stability concerns were identified.

Settlement

Portions of the embankment at the embankment are to include fill heights up to a maximum of 15 feet. The worst case scenario of 15 feet of fill has been analyzed for settlement calculations in conjunction with BR-08. Settlement is calculated to be less than 0.4 inches for the proposed embankment in the areas of the bridge. Down drag is not a concern for the abutments.

SECTION 08: RECOMMENDATIONS

Shallow Foundation Recommendations

Based on the results of the boring performed by TSC at B-2, spread footings may be used for the location of the West Abutment. We recommend using a gross allowable bearing capacity of 4,000 pound per square foot for the West Abutment. However, due to the raised embankment in the area of the proposed East Abutment and BR-08, we recommend that the East Abutment be designed for a gross allowable bearing pressure

of 2,000 pounds per square foot. However, due to variances in bearing capacity design between the abutments and the proposed East Abutment footing design being wide, we do not recommend using spread footings for design of the abutment support system. In addition, due to varied and low bearing capacity and fixity concerns at the piers, we do not recommend the piers be designed with a shallow foundation system. Instead of a shallow foundation system, we recommend the use of a deep foundation system for support of the bridge structure abutments and piers.

Deep Foundation Recommendations

Based on the results of the borings and type of structure and loading, friction H-piles can be used for the support of the proposed structures. Shell piles are not recommended because the piles will not meet the minimum embedment of 10 feet into natural soils for most of the substructures. Fixity concerns are also present at the piers and the longer H-piles will be required to meet fixity needs.

We anticipate hard driving to occur in the areas of the west and east abutments and piers. We recommend the use of driving shoes to drive the piles to the desired depths in order prevent potential damage to the piles. When Steel H-piles are used, the Steel H-piles shall be according to AASHTO M270 Grade 50.

Pile capacities and lengths were calculated to the piles' Maximum Nominal Required Bearing and are reflected in the following Appendix E. Selection of the H-pile should be based on economic and construction considerations.

As per the IDOT Design Guide AGMU Memo 10.2, dated August 2011, the Washington State DOT (WSDOT) formula has replaced the FHWA Gates Formula as the standard method of construction verification. A modified IDOT static method was used to develop the SGR pile design tables. Nominal required bearing was calculated from LRFD skin-friction (with pile type correction factors) and end-bearing calculations. A value of 1.04 is used for Bias Factor Ratio (I_G). A geotechnical resistance factor (ϕ_G) of 0.55 was used in calculations for the factored resistance available (FRA). Pile lengths were picked with respect to the loadings and geometry of the proposed structures. An automatic hammer was used for drilling operations; a hammer efficiency (ER) of 73% was used in calculations.

The pile tables, provided in Appendix E, are estimates and test piles should be used for final pile length selections. We recommend that a minimum of one test pile be performed at each substructure unit as piles are not driven to bedrock. The piles should be driven until satisfactory driving resistance is developed in accordance with an appropriate pile driving formula. The test piles shall be driven to 110 percent of the Nominal Required Bearing indicated in the pile data information. The pile size and capacity selected should be based on economic considerations and the loads imposed on the structures.

To provide adequate frost protection, we recommend that footing foundations be situated at a minimum depth of 4 feet below final grade.

For Piers 1 to 5, the pier caps are expected to be under water surface/river level. These substructure units should include underwater excavation and the work area should be kept in the dry during construction. For Pier 6, ground water was encountered at or above the pile cap elevation. The contractor should be prepared to keep the site in the dry during construction, and it is anticipated that sump pump and pit procedures can be used. For Pier 7, if ground water is encountered, sump pump and pit procedures should be used to keep the site in the dry.

Lateral Resistance Recommendations

On the following table are lateral soil parameters to be used for design of piles, temporary cofferdams and the abutments.

TABLE 2 - SOIL PARAMETERS FOR LATERAL RESISTANCE

Material (Elevation ft.)	Unit Weight (pcf)	Drained Friction Angle (°)	Undrained Cohesion (psf)	Lateral Modulus of Subgrade Reaction (pci)	Strain
Clay Fill (Proposed new grade to 710)	125	28	1,000	100	0.010
Medium Dense to Dense Sands and Gravels (above water table) (710 to 690)	130	32	-	150	0.005
Medium Dense to Dense Sands and Gravels (below water table) (690 to 675)	130	32	-	100	0.005
Medium Stiff to Stiff Clay Loam (675 to 665)	125	28	1,000	100	0.007
Medium Dense to Dense Sands and Gravels (690 to 620)	130	32	-	100	0.005
Very Dense, Sands and Gravels (620 to 597)	135	36	-	125	0.004

Notes:

1. Values recommended for use in design from L-pile Software Manual

At the abutments, it is recommended that a lateral active earth pressure of 40 psf per foot of depth be used above the water table assuming a free-draining granular backfill is utilized. For cohesive soils, a lateral active earth pressure of 55 psf per foot should be used. For non-yielding walls with granular backfill, a lateral at-rest pressure of 50 psf

per foot should be used, assuming proper drainage. For cohesive soils, a lateral at-rest pressure of 65 psf per foot should be used. Allowances should be made for any surcharge loads adjacent to the retaining structure. According to the NAVFAQ Design Manual 7.02, a value of 0.34 may be used for the coefficient of friction between the concrete base and drained cohesive soils (this assumes a concrete base on the stiff cohesive soils). For concrete on the sand and gravel soils, we recommend using a friction angle of 29 degree leading to a coefficient of friction of 0.55.

Temporary Cofferdams Recommendations

A temporary cofferdam consisting of driven sheetpile (possibly with internal wale bracing) may be used to construct the piers in the Fox River. The boring logs indicate sand and gravel soils at the proposed footing base elevation. To prevent water infiltration and sand and gravel migration/ground loss into the excavation, a seal coat will be needed for the cofferdam base. The seal coat will need to be placed underwater using tremie concrete placement techniques and then the water pumped out after the seal coat has set and cured adequately to resist the hydraulic head pressures from the river. A minimum thickness of the seal coat is 3 feet, but it should be designed for 0.2 to 0.4 times the anticipated high water head. Lateral soil properties from the above section ***Lateral Resistance Recommendations*** can be used for design.

Approach Slab Recommendations

The new approach slab will be supported on new embankment fill. We recommend using an assumed CBR of 2.0 for the compacted, fill for the embankment. Shallow footing should be designed for a gross allowable bearing of 2000 psf situated on new embankment fill. The new fill should be compacted per IDOT specifications for earth embankment. Any organics or soft, yielding subgrade (if any) should be removed prior to new fill placement. A qualified geotechnical engineer should observe the subgrade prior to any base course is placed. Settlement is calculated on the order of less than 0.4 inches.

SECTION 09: GENERAL CONSTRUCTION CONSIDERATIONS

For construction of the abutments, plans show that there will be sufficient space to allow for sloping excavation embankment. Excavation safety is the responsibility of the contractor; however, we recommend that excavation sides be sloped at 1.5H:1V or flatter above the water table for this purpose.

There is no existing roadway in this portion of the project and stage construction will not be needed. If the need for temporary earth retention arises, cantilevered sheet piling can be used and support will be provided by the primarily sandy and gravelly soils found throughout borings obtained. If temporary soil retention is needed at the abutments, support will be provided from the new soil embankment.

During excavation for the proposed improvements, movement of adjacent soils into the excavation should be prevented. All excavations should be performed in accordance with the latest Occupational Safety and Health Administration (OSHA) requirements. Allowances should be made for any surcharge loads adjacent to the retaining structures.

SECTION 10: GENERAL QUALIFICATIONS

The analysis and recommendations presented in this report are based upon the data obtained from the soil borings performed at the indicated locations and from any other information discussed in this report. This report does not reflect any variations that may occur between borings or across the site. In addition, the soil & rock core samples cannot be relied on to accurately reflect the strata variations that usually exist between sampling locations. The nature and extent of such variations may not become evident until construction. If variations appear evident, it will be necessary to reevaluate the recommendations of the report. In addition, it is recommended that Geo Services Inc. be retained to perform construction observation and thereby provide a complete professional geotechnical engineering service through the observational method.

This report has been prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted geotechnical engineering practices. No other warranties, either expressed or implied, are intended or made. In the event that any changes in the nature, design or location of the project as outlined in this report are planned, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and the conclusions of this report modified or verified in writing by the geotechnical engineer. Also note that Geo Services Inc. is not responsible for any claims, damages, or liability associated with any other party's interpretation of this report's subsurface data or reuse of the report's subsurface data or engineering analyses without the express written authorization of Geo Services Inc.

APPENDIX A
GENERAL NOTES

GENERAL NOTES

CLASSIFICATION

American Association of State Highway & Transportation Officials (AASHTO) System used for soil classification.

Cohesionless Soils

<u>Relative Density</u>	<u>No. of Blows per foot N</u>
Very Loose	0 to 4
Loose	4 to 10
Medium Dense	10 to 30
Dense	30 to 50
Very Dense	Over 50

TERMINOLOGY

Streaks are considered to be paper thick. **Lenses** are considered to be less than 2 inches thick. **Layers** are considered to be less than 6 inches thick. **Stratum** are considered to be greater than 6 inches thick.

Cohesive Soils

<u>Consistency</u>	<u>Unconfined Compressive Strength - qu (tsf)</u>
Very Soft	Less than 0.25
Soft	0.25 - 0.5
Medium Stiff	0.5 - 1.0
Stiff	1.0 - 2.0
Very Stiff	2.0 - 4.0
Hard	Over 4.0

DRILLING AND SAMPLING SYMBOLS

SS: Split Spoon 1-3/8" I.D., 2" O.D.	HS: Housel Sampler
ST: Shelby Tube 2" O.D., except where noted	WS: Wash Sample
AS: Auger Sample	FT: Fish Tail
DB: Diamond Bit - NX: BX: AX	RB: Rock Bit
CB: Carboly Bit - NX: BX: AX	WO: Wash Out
OS: Osterberg Sampler	

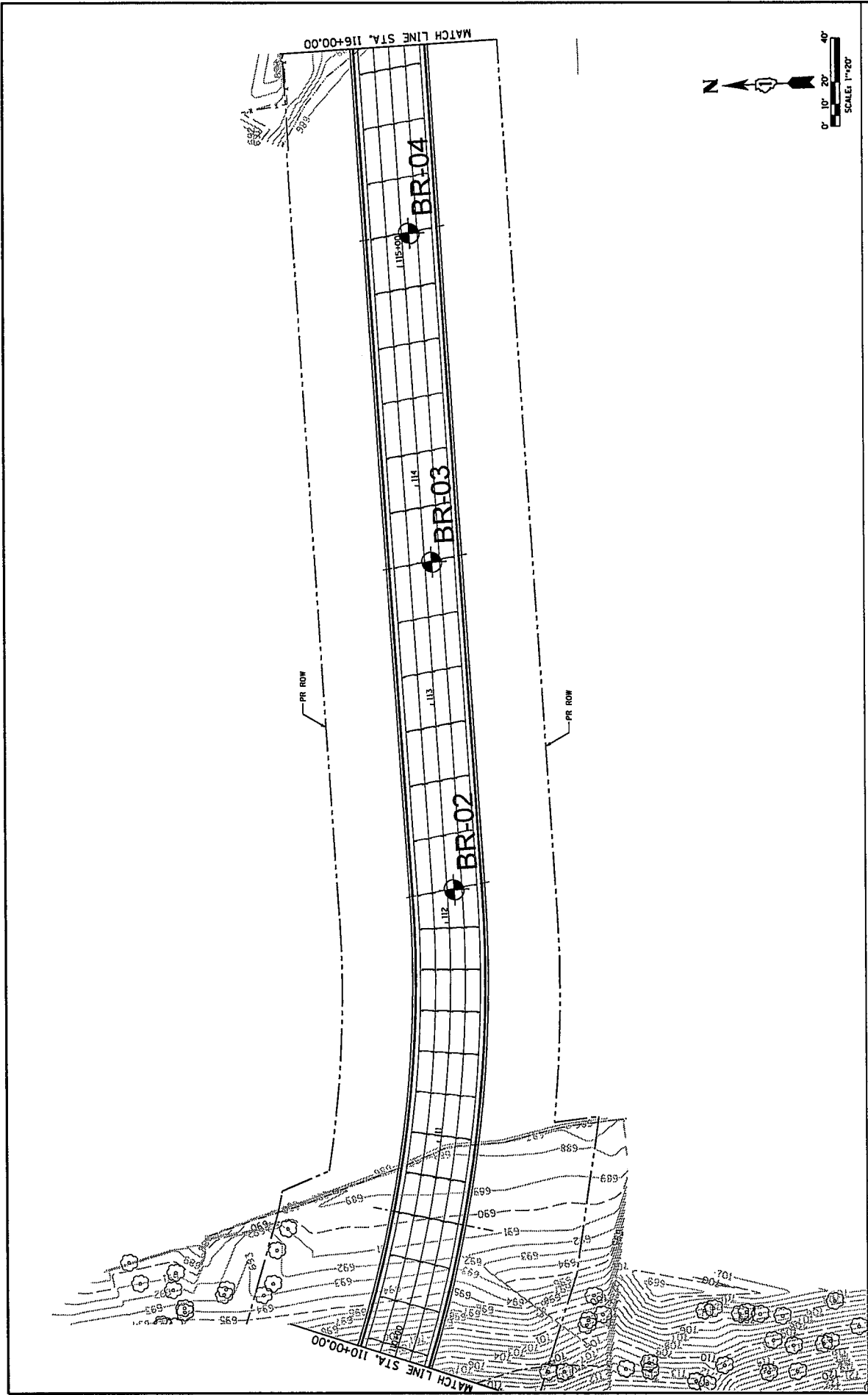
Standard "N" Penetration: Blows per foot of a 140 lb. hammer falling 30" on a 2" O.D. Split Spoon

WATER LEVEL MEASUREMENT SYMBOLS

WL: Water	WD: While Drilling
WCI: Wet Cave In	BCR: Before Casing Removal
DCI: Dry Cave In	ACR: After Casing Removal
WS: While sampling	AB: After Boring

Water levels indicated on the boring logs are the levels measured in the boring at the times indicated. In pervious soils, the indicated elevations are considered reliable ground water levels. In impervious soils, the accurate determination of ground water elevations is not possible in even several days observation, and additional evidence on ground water elevations must be sought.

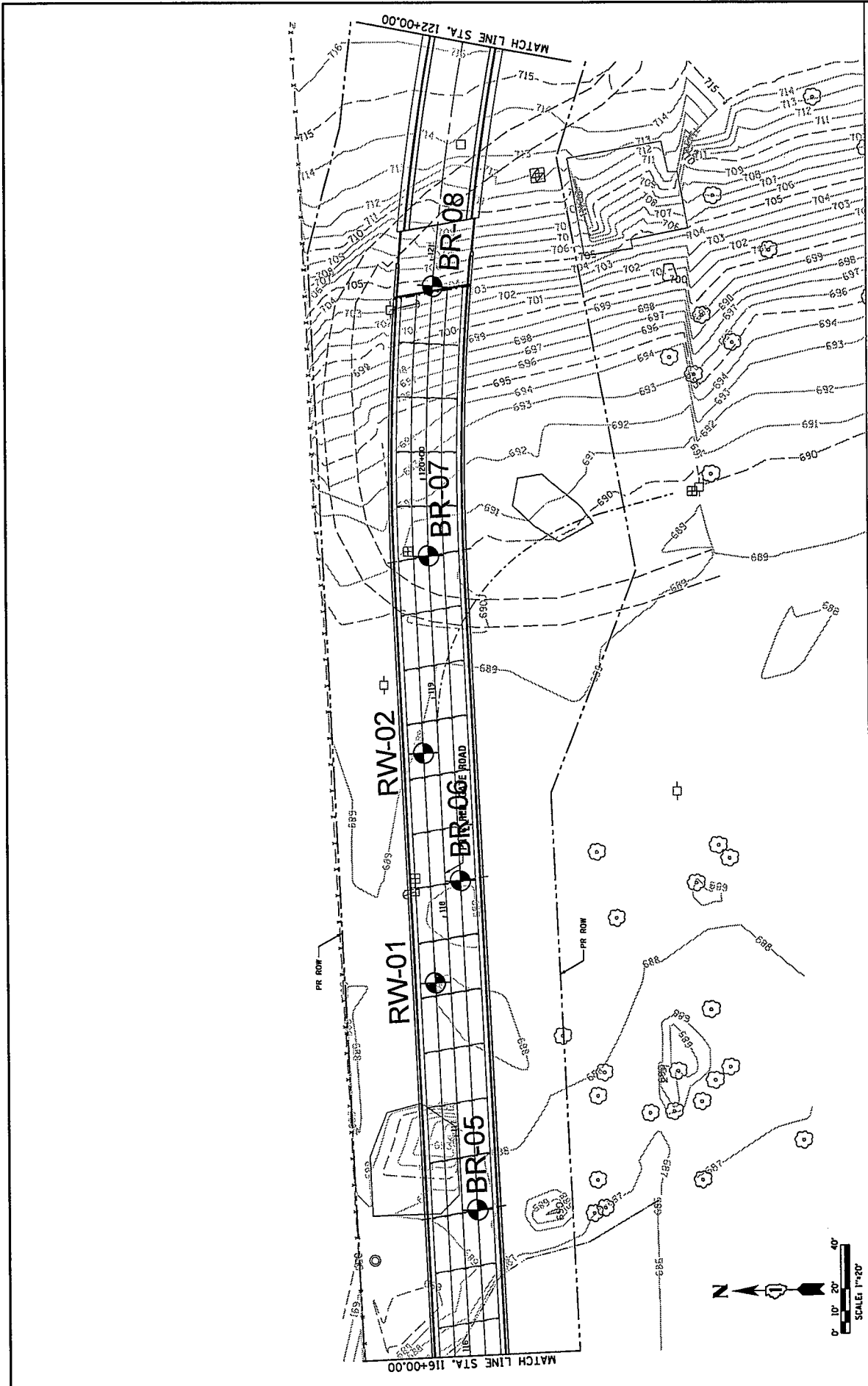
APPENDIX B
BORING LOCATION DIAGRAM



FILE NO.:	REVISED	STATE OF ILLINOIS	SECTION	COUNTY	DATE	SHEET
PROJECT:	NO.	DEPARTMENT OF TRANSPORTATION	04-0092-00-3R	LAKE	06/24/2011	116
DATE:	REVISED	RED GATE ROAD OVER THE FOX RIVER	* N. ROUTE 25 & IL ROUTE 31		CONTRACT NO.	
	REVISED	SOIL BORING PLAN	BALDWIN (R.D. 13) PROJECT			
	REVISED	SCALE: 1"=20'				

PROFILER	DATE
DATE	DATE

PLAN	DATE
DATE	DATE

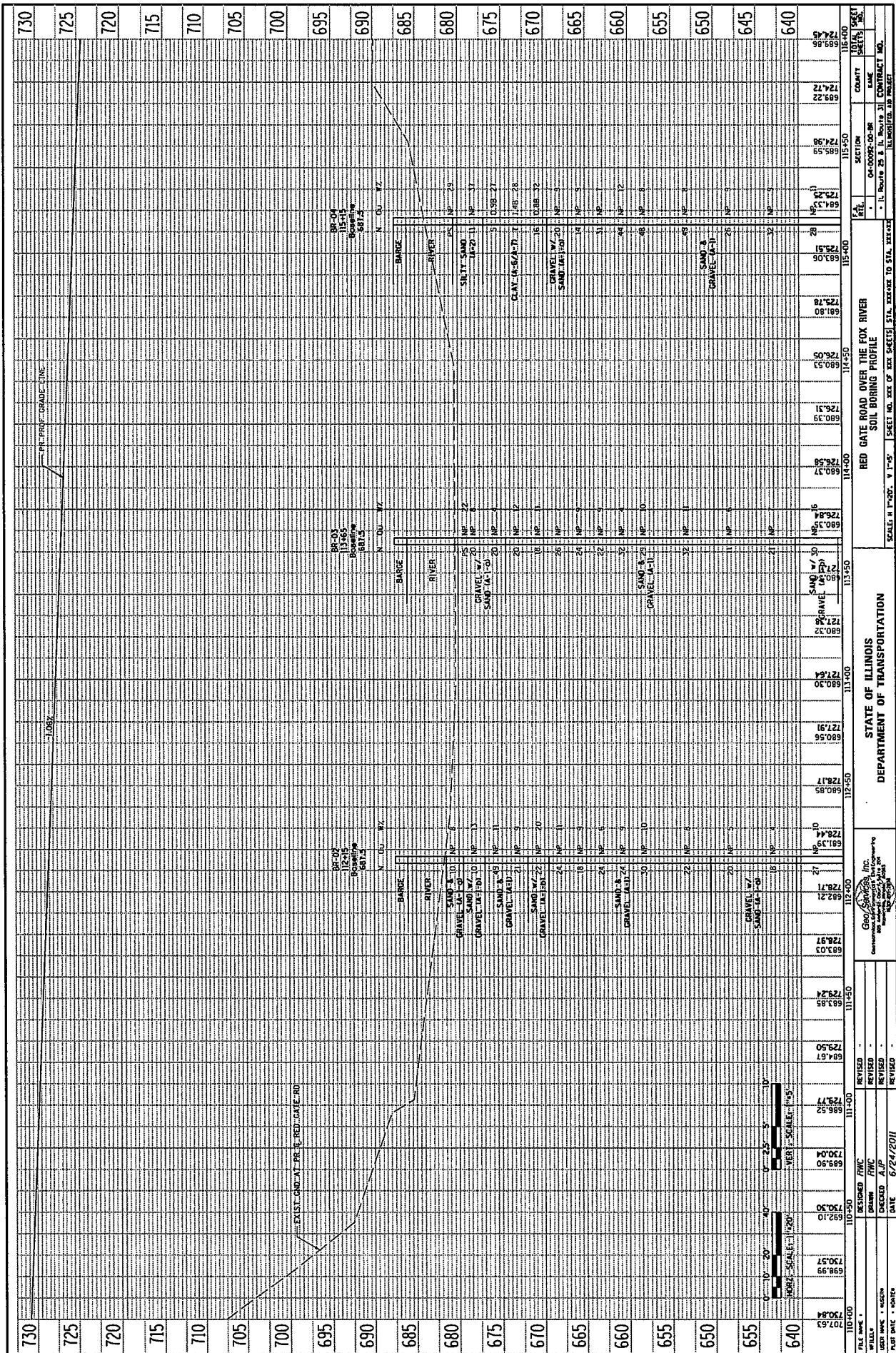


FILE NAME	DESIGNED	CHK	STATE OF ILLINOIS	SECTION	COUNTY	PROJECT
DATE	REVISION	BY	DEPARTMENT OF TRANSPORTATION	04-0005-00-BR	CLAY	CLAY
PROJECT NO.	DATE	DATE	RED GATE ROAD OVER THE FOX RIVER	IL Route 28 & IL Route 31	IL Route 28 & IL Route 31	CONTRACT NO.
PROJECT NO.	DATE	DATE	SOIL BORING PLAN	IL Route 28 & IL Route 31	IL Route 28 & IL Route 31	CONTRACT NO.
PROJECT NO.	DATE	DATE	SCALE: 1"=20'	IL Route 28 & IL Route 31	IL Route 28 & IL Route 31	CONTRACT NO.

PLAN	DATE	BY
DATE	BY	DATE

PROFILE	DATE	BY
DATE	BY	DATE

APPENDIX C
SOIL PROFILE



DATE	
BY	
CHECKED	
DESIGNED	
PROJECT NO.	
CONTRACT NO.	
SHEET NO.	
TOTAL SHEETS	

DATE	
BY	
CHECKED	
DESIGNED	
PROJECT NO.	
CONTRACT NO.	
SHEET NO.	
TOTAL SHEETS	

APPENDIX D
BORING LOGS



SOIL BORING LOG

ROUTE IL. Rte. 25 & IL. Rte. 31 DESCRIPTION Red Gate Road Over The Fox River

SECTION 04-00092-00-BR LOCATION SEC. 15, TWP. 40 N., RNG. 8 E., 3rd P.M., St. Charles Township

COUNTY Kane DRILLING METHOD Rotary HAMMER TYPE CME Automatic

STRUCT. NO. 045-6024

Station 115+15

BORING NO. BR-02

Station 112+15 Red Gate Road

Offset Baseline

Barge Deck Elevation 687.5

D E P T H (ft)	B L O W S (/6")	U C S Qu (tsf)	M O I S T (%)	Surface Water Elev.	<u>686.0</u>	D E P T H (ft)	B L O W S (/6")	U C S Qu (tsf)	M O I S T (%)
				Stream Bed Elev.	<u>681.5</u>				
				Groundwater Elevation:					
				First Encounter	<u>n/a</u> ▼				
				Upon Completion	<u>n/a</u> ▼				
				After _____ Hrs.	_____ ▼				

BARGE									
	686.0						4		
							8		
							10	NP	9
RIVER							8		
							12		
							-25	12	NP 6
	681.5								
		2					9		
SAND & GRAVEL-gray-medium dense (A-1-a)		4					11		
		6	NP	8			13	NP	9
	679.5								
		4					11		
SAND with Gravel-gray-medium dense (A-1-b)		5					13		
		-10	5	NP	13		-30	17	NP 10
	677.0								
		17							
		22							
SAND & GRAVEL-brown-medium dense to dense (A-1)		27	NP	11					
		7					11		
		7					13		
		-15	14	NP	9		-35	9	NP 8
	672.0								
		7							
SAND with Gravel-brown-medium dense (A-1-b)		10							
		12	NP	20					
	669.5								
		9							
SAND & GRAVEL-gray-medium dense to dense (A-1)		12							
		-20	12	NP	11		-40	10	NP 5

SAND & GRAVEL-gray-medium dense to dense (A-1)

650.5

GRAVEL with Sand-gray-medium dense (A-1-a)

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample VS=Vane Shear Test
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
 NR-No Recovery PS=Pushed Spoon

217



SOIL BORING LOG

PAGE 2 of 3

DATE 5/17-18/2011

LOGGED BY _____

GSJ JOB No. 10191

ROUTE IL. Rte. 25 & IL. Rte. 31 DESCRIPTION Red Gate Road Over The Fox River

SECTION 04-00092-00-BR LOCATION SEC. 15, TWP. 40 N., RNG. 8 E., 3rd P.M., St. Charles Township

COUNTY Kane DRILLING METHOD Rotary HAMMER TYPE CME Automatic

STRUCT. NO. 045-6024
Station 115+15

BORING NO. **BR-02**
Station 112+15 Red Gate Road
Offset Baseline
Barge Deck Elevation 687.5

D E P T H (ft)	B L O W S (/6")	U C S Qu (tsf)	M O I S T (%)	Surface Water Elev. <u>686.0</u> Stream Bed Elev. <u>681.5</u> Groundwater Elevation: First Encounter <u>n/a</u> ▼ Upon Completion <u>n/a</u> ▼ After _____ Hrs. _____ ▼	D E P T H (ft)	B L O W S (/6")	U C S Qu (tsf)	M O I S T (%)
-----------------------------------	------------------------------------	--------------------------------	----------------------------------	---	-----------------------------------	------------------------------------	--------------------------------	----------------------------------

<p>GRAVEL with Sand-gray-medium dense (A-1-a)</p>	<p style="text-align: center;">640.5</p>	<p>SAND & GRAVEL-gray-medium dense to very dense (A-1)</p>	<p>SAND & GRAVEL-gray-medium dense to very dense (A-1)</p>
10	12	8	8
9	12	16	16
-45 9 NP 4	-50 15 NP 10	-70 19 NP 7	-75 19 NP 7
12	12	18	18
15	15	28	28
-55 18 NP 9	-55 18 NP 9	-80 50/3 NP 10	-80 50/3 NP 10
12	12	23	23
15	15	32	32
-60 38 NP 8	-60 38 NP 8	-80 50/1 NP 10	-80 50/1 NP 10

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample VS-Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR-No Recovery PS-Pushed Spoon



SOIL BORING LOG

ROUTE IL. Rte. 25 & IL. Rte. 31 DESCRIPTION Red Gate Road Over The Fox River

SECTION 04-00092-00-BR LOCATION SEC. 15, TWP. 40 N., RNG. 8 E., 3rd P.M., St. Charles Township

COUNTY Kane DRILLING METHOD Rotary HAMMER TYPE CME Automatic

STRUCT. NO. 045-6024

Station 115+15

BORING NO. **BR-03**

Station 113+65 Red Gate Road

Offset Baseline

Barge Deck Elevation 687.5

DEPTH (ft)	BLOW S	UCS Qu	MOIST T (%)	Surface Water Elev. <u>686.0</u>				DEPTH (ft)	BLOW S	UCS Qu	MOIST T (%)
				Stream Bed Elev. <u>680.0</u>							
				Groundwater Elevation:							
				First Encounter <u>n/a</u> ▼							
				Upon Completion <u>n/a</u> ▼							
				After _____ Hrs. _____ ▼							
BARGE				SAND & GRAVEL-medium dense (A-1) <u>687.0</u>							
								11			
								11			
								13	NP	9	
								8			
								10			
				-5				-25	12	NP	9
								16			
								16			
								16	NP	4	
								11			
								16			
				-10				-30	13	NP	10
								10			
								10			
								10	NP	4	
								17			
								17			
				-15				-35	15	NP	11
								5			
								9			
								9	NP	11	
								13			
								13			
				-20				-40	4	NP	6

686.0

RIVER
680.0

GRAVEL with Sand-gray-medium dense (A-1-a)
674.5

SAND & GRAVEL-brown & gray-medium dense (A-1)

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample VS-Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR-No Recovery PS-Pushed Spoon



SOIL BORING LOG

PAGE 2 of 3
 DATE 5/19-20/2011
 LOGGED BY RJ
 GSI JOB No. 10191

ROUTE IL. Rte. 25 & IL. Rte. 31 DESCRIPTION Red Gate Road Over The Fox River
 SECTION 04-00092-00-BR LOCATION SEC. 15, TWP. 40 N., RNG. 8 E., 3rd P.M., St. Charles Township
 COUNTY Kane DRILLING METHOD Rotary HAMMER TYPE CME Automatic

STRUCT. NO. 045-6024
 Station 115+15
 BORING NO. BR-03
 Station 113+65 Red Gate Road
 Offset Baseline
 Barge Deck Elevation 687.5

D E P T H (ft)	B L O W S (/6")	U C S (tsf)	M O I S T (%)	Surface Water Elev. <u>686.0</u> Stream Bed Elev. <u>680.0</u> Groundwater Elevation: First Encounter <u>n/a</u> ▼ Upon Completion <u>n/a</u> ▼ After _____ Hrs. _____ ▼	D E P T H (ft)	B L O W S (/6")	U C S (tsf)	M O I S T (%)
-----------------------------------	------------------------------------	--------------------------	----------------------------------	---	-----------------------------------	------------------------------------	--------------------------	----------------------------------

				SAND & GRAVEL-gray-medium dense to dense (A-1)				
				625.5				
SAND & GRAVEL-gray-medium dense to dense (A-1)	8					44		
	7					50/3"		
	-45	14	NP	7	-65		NP	9
				GRAVEL with Sand-gray-very dense (A-1-a)				
				640.5				
SAND with Gravel-gray-dense (A-1-b)	7					50/6"		
	14							
	-50	16	NP	16	-70		NP	7
				635.5				
SAND & GRAVEL-gray-medium dense to dense (A-1)	9					50/1"		
	11							
	-55	13	NP	6	-75			NR
				SAND & GRAVEL-gray-very dense (A-1)				
				615.5				
	8					50/3"		
	16							
	-60	18	NP	5	-80			NR

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample VS=Vane Shear Test
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
 NR-No Recovery PS=Pushed Spoon



SOIL BORING LOG

ROUTE IL. Rte. 25 & IL. Rte. 31 DESCRIPTION Red Gate Road Over The Fox River

SECTION 04-00092-00-BR LOCATION SEC. 15, TWP. 40 N., RNG. 8 E., 3rd P.M., St. Charles Township

COUNTY Kane DRILLING METHOD Rotary HAMMER TYPE CME Automatic

STRUCT. NO. 045-6024
Station 115+15

BORING NO. **BR-03**
Station 113+65 Red Gate Road
Offset Baseline
Barge Deck Elevation 687.5

Surface Water Elev.	<u>686.0</u>	D	B	U	M
Stream Bed Elev.	<u>680.0</u>	E	L	C	O
Groundwater Elevation:		P	O	S	I
First Encounter	<u>n/a</u> ▼	T	W	S	S
Upon Completion	<u>n/a</u> ▼	H	S	Qu	T
After _____ Hrs.	_____ ▼	(ft)	(/6")	(tsf)	(%)

SAND & GRAVEL—gray— very dense (A-1)					
	50/6"				
	-85	NP	19		-105
	50/6"				
	597.5 -90	NP	9		-110
End Of Boring @ -90.0' Rotary Drilling CME Automatic Hammer					
	-95				-115
	-100				-120

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample VS=Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR-No Recovery PS=Pushed Spoon



SOIL BORING LOG

PAGE 2 of 3
 DATE 5/23/2011
 LOGGED BY RJ
 GSI JOB No. 10191

ROUTE IL. Rte. 25 & IL. Rte. 31 DESCRIPTION Red Gate Road Over The Fox River
 SECTION 04-00092-00-BR LOCATION SEC. 15, TWP. 40 N., RNG. 8 E., 3rd P.M., St. Charles Township
 COUNTY Kane DRILLING METHOD Rotary HAMMER TYPE CME Automatic

STRUCT. NO. <u>045-6024</u> Station <u>115+15</u>	DEPTH H (ft)	BLOW S (/6")	UCS Qu (tsf)	MOIST T (%)	Surface Water Elev. <u>686.0</u>	DEPTH H (ft)	BLOW S (/6")	UCS Qu (tsf)	MOIST T (%)
					Stream Bed Elev. <u>680.5</u>				
BORING NO. BR-04 Station <u>115+15 Red Gate Road</u> Offset <u>Baseline</u> Barge Deck Elevation <u>687.5</u>					First Encounter <u>n/a</u> ▼				
					Upon Completion <u>n/a</u> ▼				
					After <u> </u> Hrs. <u> </u> ▼				
SAND & GRAVEL—brown—medium dense to dense (A-1)	645.5				SAND with Gravel—gray—dense (A-1-b)	625.5			
		13					18		
		13			SAND & GRAVEL—gray—dense (A-1)		18		
	-45	19	NP	9		-65	20	NP	9
SAND & GRAVEL—gray—medium dense to dense (A-1)						620.5			
		12					19		
		14					22		
	-50	14	NP	11		-70	22	NP	8
					GRAVEL with Sand—gray—dense (A-1-a)				
		13					23		
		16					23		
	-55	18	NP	8		-75	26	NP	8
	630.5					610.5			
SAND with Gravel—gray—dense (A-1-b)					SAND & GRAVEL—gray—dense to very dense (A-1)				
		20					26		
		22					28		
	-60	22	NP	9		-80	30	NP	10

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B—Bulge, S—Shear, P—Penetrometer) ST—Shelby Tube Sample VS—Vane Shear Test
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
 NR—No Recovery PS—Pushed Spoon



SOIL BORING LOG

ROUTE IL. Rte. 25 & IL. Rte. 31 DESCRIPTION Red Gate Road Over The Fox River

SECTION 04-00092-00-BR LOCATION SEC. 15, TWP. 40 N., RNG. 8 E., 3rd P.M., St. Charles Township

COUNTY Kane DRILLING METHOD Rotary HAMMER TYPE CME Automatic

STRUCT. NO. 045-6024

Station 115+15

BORING NO. BR-04

Station 115+15 Red Gate Road

Offset Baseline

Barge Deck Elevation 687.5

DEPTH (ft)	BLOW S (/6")	UCS (tsf)	MOIST (%)	Surface Water Elev.	Stream Bed Elev.	Groundwater Elevation:	First Encounter	Upon Completion	After _____ Hrs.
				<u>686.0</u>	<u>680.5</u>		<u>n/a</u> ▼	<u>n/a</u> ▼	▼

SAND & GRAVEL—gray—dense to very dense (A-1)

50/6"

-85 NP 11

-105

Drillers Note:
Possible boulder or bedrock @ -88.5'

50/3"

597.5 -90 NR

-110

End Of Boring @ -90.0'
Rotary Drilling
CME Automatic Hammer

-95

-115

-100

-120

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample VS=Vone Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR-No Recovery PS=Pushed Spoon



SOIL BORING LOG

PAGE 1 of 3
 DATE 12/10/2010
 LOGGED BY MR
 GSI JOB No. 10191

ROUTE IL. Rte. 25 & IL. Rte. 31 DESCRIPTION Red Gate Road Over The Fox River
 SECTION 04-00092-00-BR LOCATION SEC. 15, TWP. 40 N., RNG. 8 E., 3rd P.M., St. Charles Township
 COUNTY Kane DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE CME Automatic

	D E P T H (ft)	B L O W S (/6")	U C S Qu (tsf)	M O I S T (%)		D E P T H (ft)	B L O W S (/6")	U C S Qu (tsf)	M O I S T (%)
STRUCT. NO. <u>045-6024</u> Station <u>115+15</u>					Surface Water Elev. <u>n/a</u> Stream Bed Elev. <u>n/a</u>				
BORING NO. BR-05 Station <u>116+66 Red Gate Road</u> Offset <u>7.0' Right</u> Ground Surface Elev. <u>688.6</u>					Groundwater Elevation: First Encounter <u>685.6</u> ▼ Upon Completion <u>n/a</u> ▼ After _____ Hrs. _____ ▼				
12.0" TOPSOIL-black	687.6	AS	-	31	SILTY CLAY LOAM-gray (A-4/A-6) <i>668.1</i>				
		2		93			2		92
SILTY CLAY-dark brown to black-soft (A-6)		2			CLAY-gray-stiff (A-6) Wet		3		
▼ 685.6		2	0.4B	24		4	1.0B	31	
		7							
		7				4			
		-5	8	NP	11	-25	12	NP	8
SAND & GRAVEL-brown-medium dense (A-1)		7							
		9				44			
		13	NP	14	SAND & GRAVEL-brown & gray-medium dense to dense (A-1)	26	NP	9	
		10				16			
		11				20			
-10		13	NP	9		-30	24	NP	6
678.1									
		8							
SAND-brown-medium dense (A-3)		12							
675.6		11	NP	18					
		3		93					
		4				10			
		-15	6	0.6B	28	-35	24	NP	6
SILTY CLAY LOAM-gray-medium stiff to stiff (A-4/A-6)		3							
		5							
		5	1.5P	24					
		2			SAND & GRAVEL-gray-dense to very dense (A-1)				
		3				26			
-20		4	0.5P	31		19			
						-40	16	NP	7

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample VS=Vane Shear Test
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
 NR-No Recovery PS=Pushed Spoon



SOIL BORING LOG

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ROUTE IL. Rte. 25 & IL. Rte. 31 DESCRIPTION Red Gate Road Over The Fox River
 SECTION 04-00092-00-BR LOCATION SEC. 15, TWP. 40 N., RNG. 8 E., 3rd P.M., St. Charles Township
 COUNTY Kane DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE CME Automatic

STRUCT. NO. 045-6024
 Station 115+15
 BORING NO. BR-05
 Station 116+66 Red Gate Road
 Offset 7.0' Right
 Ground Surface Elev. 688.6

DEPTH THICKNESS (ft)	BLOW COUNT (/6")	UNCONF. COMPRESSIVE STRENGTH (tsf)	MOISTURE CONTENT (%)	Surface Water Elev. <u>n/a</u>	Stream Bed Elev. <u>n/a</u>	GROUNDWATER ELEVATION	DEPTH THICKNESS (ft)	BLOW COUNT (/6")	UNCONF. COMPRESSIVE STRENGTH (tsf)	MOISTURE CONTENT (%)
						Groundwater Elevation:				
						First Encounter <u>685.6</u> ▼				
						Upon Completion <u>n/a</u> ▼				
						After _____ Hrs. _____ ▼				

CLAY LOAM-gray-hard (A-6)	606.6									
SAND-gray-very dense (A-3)	50/4"									
End Of Boring @ -85.0' Hollow Stem Augers To -10.0' Rotary Drilling To Completion CME Automatic Hammer 10.0' Of 4.0"Ø Casing Used	603.6 -85	NP	19				-105			
	-90						-110			
	-95						-115			
	-100						-120			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample VS=Vane Shear Test
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
 NR-No Recovery PS=Pushed Spoon



SOIL BORING LOG

ROUTE IL. Rte. 25 & IL. Rte. 31 DESCRIPTION Red Gate Road Over The Fox River

SECTION 04-00092-00-BR LOCATION SEC. 15, TWP. 40 N., RNG. 8 E., 3rd P.M., St. Charles Township

COUNTY Kane DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE CME Automatic

STRUCT. NO. 045-6024
Station 115+15

BORING NO. **BR-06**
Station 118+16 Red Gate Road
Offset 7.0' Right
Ground Surface Elev. 689.2

DEPTH TH (ft)	BLOW S (/6")	UCS Qu (tsf)	MOIST T (%)	Surface Water Elev.	DEPTH TH (ft)	BLOW S (/6")	UCS Qu (tsf)	MOIST T (%)
				<u>n/a</u>				
				<u>n/a</u>				
				<u>n/a</u>				
				Groundwater Elevation:				
				First Encounter				
				Upon Completion				
				After _____ Hrs.				

Sandy TOPSOIL with Gravel—brown	688.2	AS	-	17				
		2						
CLAY LOAM—dark brown—medium stiff (A-6)		3						
		3	0.75P	23	666.7	10	1.1B	30
	686.2							
		3						
SAND & GRAVEL—brown—medium dense (A-1-b)		5						
		-5	7	NP	683.7	-25	11	NP
		9						
		9						
		10	NP	20				
SAND—brown—medium dense (A-3)								
		6						
		10						
		-10	10	NP	676.2	-30	22	NP
		5						
		7						
		7	NP	21				
	673.7							
SILTY CLAY LOAM—gray—stiff (A-4)		6		94				
		6						
		-15	5	1.0B	673.7	-35	20	NP
		3		96				
		3						
SILTY CLAY to SILTY CLAY LOAM—gray—stiff (A-4/A-6) Wet		6	1.2B	28				
		2		95				
		2	1.6S@					
		-20	3	14.1%		-40	19	NP

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample VS-Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR-No Recovery PS—Pushed Spoon



SOIL BORING LOG

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ROUTE IL. Rte. 25 & IL. Rte. 31 DESCRIPTION Red Gate Road Over The Fox River
 SECTION 04-00092-00-BR LOCATION SEC. 15, TWP. 40 N., RNG. 8 E., 3rd P.M., St. Charles Township
 COUNTY Kane DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE CME Automatic

STRUCT. NO. 045-6024
 Station 115+15
 BORING NO. **BR-06**
 Station 118+16 Red Gate Road
 Offset 7.0' Right
 Ground Surface Elev. 689.2

D E P T H	B L O W S	U C S Qu	M O I S T (%)	Surface Water Elev. <u>n/a</u> Stream Bed Elev. <u>n/a</u> Groundwater Elevation: First Encounter <u>686.2</u> ▼ Upon Completion <u>n/a</u> ▼ After _____ Hrs. _____ ▼	D E P T H	B L O W S	U C S Qu	M O I S T (%)
(ft)	(/6")	(tsf)	(%)		(ft)	(/6")	(tsf)	(%)

SAND, GRAVEL & FRACTURED ROCK— gray—medium dense to very dense (A-1)		15								SAND, GRAVEL & FRACTURED ROCK— gray—medium dense to very dense (A-1)		41								
		15										50/4"								
		-45	15	NP	4							-65	NP	7						
			23									15								
		17										15								
		-50	15	NP	6							-70	21	NP	14					
			20									19								
		22										35								
		-55	50	NP	9							-75	22	NP	8					
			38									16								
		50/5"										50/5"								
		-60	NP	5								-80	NP	7						

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST=Shelby Tube Sample VS=Vane Shear Test
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
 NR=No Recovery PS=Pushed Spoon



SOIL BORING LOG

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ROUTE IL. Rte. 25 & IL. Rte. 31 DESCRIPTION Red Gate Road Over The Fox River
 SECTION 04-00092-00-BR LOCATION SEC. 15, TWP. 40 N., RNG. 8 E., 3rd P.M., St. Charles Township
 COUNTY Kane DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE CME Automatic

STRUCT. NO. 045-6024
 Station 115+15
 BORING NO. **BR-07**
 Station 119+65 Red Gate Road
 Offset Baseline
 Ground Surface Elev. 691.0

DEPTH (ft)	BLOW S (/6")	UCS Qu (tsf)	MOIST T (%)	Surface Water Elev.	DEPTH (ft)	BLOW S (/6")	UCS Qu (tsf)	MOIST T (%)
				<u>n/a</u>				
				Groundwater Elevation:				
				First Encounter <u>n/a</u> ▼				
				Upon Completion <u>n/a</u> ▼				
				After _____ Hrs. _____ ▼				

8.0" TOPSOIL-black	690.3	AS	-	20					
		5				13			
CLAY LOAM-dark brown-hard (A-6) Possible Fill		7				13			
	688.0	7	4.5+P	11		13	NP	8	
		2				13			
SAND with Gravel-brown-very loose (A-1-b)		1				15			
	685.5	-5	1	NP	15	-25	15	NP	10
		2				13			
		4				15			
SAND-brown-medium dense (A-3)		6	NP	18		16	NP	7	
		4				13			
		7				17			
	680.5	-10	10	NP	22	-30	21	NP	7
		3							
SILTY CLAY LOAM-gray-medium dense (A-4)		4							
	678.0	7	0.75P	19					
		4				17			
		9				20			
		-15	10	NP	11	-35	22	NP	5
		8							
SAND & GRAVEL-brown & gray-dense to very dense (A-1)		9							
		10	NP	7					
		11				23			
		13				27			
		-20	13	NP	10	-40	31	NP	7

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrator) ST-Shelby Tube Sample VS-Vane Shear Test
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
 NR-No Recovery PS-Pushed Spoon



SOIL BORING LOG

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ROUTE IL. Rte. 25 & IL. Rte. 31 DESCRIPTION Red Gate Road Over The Fox River
 SECTION 04-00092-00-BR LOCATION SEC. 15, TWP. 40 N., RNG. 8 E., 3rd P.M., St. Charles Township
 COUNTY Kane DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE CME Automatic

STRUCT. NO. 045-6024
 Station 115+15
 BORING NO. BR-07
 Station 119+65 Red Gate Road
 Offset Baseline
 Ground Surface Elev. 691.0

	D E P T H	B L O W S	U C S	M O I S T	Surface Water Elev. <u>n/a</u>	D E P T H	B L O W S	U C S	M O I S T
					Stream Bed Elev. <u>n/a</u>				
	(ft)	(/6")	(tsf)	(%)					
			Qu		First Encounter <u>n/a</u> ▼				
					Upon Completion <u>n/a</u> ▼				
					After <u> </u> Hrs. <u> </u> ▼				
606.0	-85		NP	9		-105			
-90						-110			
-95						-115			
-100						-120			

SAND & GRAVEL—brown & gray—
dense to very dense (A-1)

50/3'

End Of Boring @ -85.0'
 Hollow Stem Augers To -10.0'
 Rotary Drilling To Completion
 CME Automatic Hammer
 10.0' Of 4.0"∅ Casing Used

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B—Bulge, S—Shear, P—Penetrometer) ST—Shelby Tube Sample VS—Vane Shear Test
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in *italics* above moist (%)
 NR—No Recovery PS—Pushed Spoon



SOIL BORING LOG

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ROUTE IL. Rte. 25 & IL. Rte. 31 DESCRIPTION Red Gate Road Over The Fox River
 SECTION 04-00092-00-BR LOCATION SEC. 15, TWP. 40 N., RNG. 8 E., 3rd P.M., St. Charles Township
 COUNTY Kane DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE CME Automatic

STRUCT. NO. 045-6024
 Station 115+15
 BORING NO. **BR-08**
 Station 120+88 Red Gate Road
 Offset Baseline
 Ground Surface Elev. 704.4

D E P T H (ft)	B L O W S (/6")	U C S Qu (tsf)	M O I S T (%)	Surface Water Elev.	D E P T H (ft)	B L O W S (/6")	U C S Qu (tsf)	M O I S T (%)
				<u>n/a</u>				
				<u>n/a</u>				
				<u>n/a</u>				
				Groundwater Elevation:				
				First Encounter				
				Upon Completion				
				After _____ Hrs.				

Silty SAND & GRAVEL—dark brown	703.4	AS	-	12					
		8				16			
		11				25			
		11	NP	3		25	NP	6	
		13				11			
		13				13			
		-5	16	NP	4	-25	12	NP	19
		20				13			
		23				15			
		22	NP	3		12	NP	12	
		18			675.9	5		95	
		23				6	2.6S ₀		
		-10	26	NP	3	-30	6	12.7%	27
		17			673.4				
		21							
		23	NP	10					
		21				12			
		20				14			
		-15	21	NP	10	-35	16	NP	9
		11							
		16							
		17	NP	6					
		25				15			
		37				20			
		-20	34	NP	6	-40	17	NP	10

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B—Bulge, S—Shear, P—Penetrometer) ST—Shelby Tube Sample VS—Vane Shear Test
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
 NR—No Recovery PS—Pushed Spoon

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APPENDIX E
PILE DESIGN TABLES

Estimated H-Pile Lengths and Capacities for SN 045-6024 West Abutment & Pier 1

Boring B-02 W Abutment (Elevation 720.9 Begin Friction, 722.9 for Pile Cutoff)								
Estimated Pile Length (ft.)	HP 10x42		HP 12x53		HP 14x73		Factored Resistance Available, FRA (Kips)	Nominal Required Bearing, NRB (Kips)
	Factored Resistance Available, FRA (Kips)	Nominal Required Bearing, NRB (Kips)	Factored Resistance Available, FRA (Kips)	Nominal Required Bearing, NRB (Kips)	Factored Resistance Available, FRA (Kips)	Nominal Required Bearing, NRB (Kips)		
17	47	85	56	102	68	124		
19	56	101	67	122	83	151		
22	74	135	89	162	109	198		
24	84	152	101	183	122	222		
27	82	149	104	189	127	231		
29	81	147	102	186	128	232		
32	86	157	109	198	137	249		
34	93	168	118	214	144	262		
37	94	171	119	217	149	271		
39	95	173	120	219	150	272		
42	97	177	122	222	152	276		
44	99	180	124	225	154	279		
47	99	181	124	226	153	279		
49	101	183	126	228	155	281		
52	113	206	143	260	178	325		
54	127	231	161	292	195	354		
57	124	226	156	284	194	353		
59	120	217	149	271	183	332		
62	131	239	165	300	205	373		
64	145	263	184	334	230	418		

Note: All piles reach Max Available NRB based on Pile Driving Stresses through soil layers

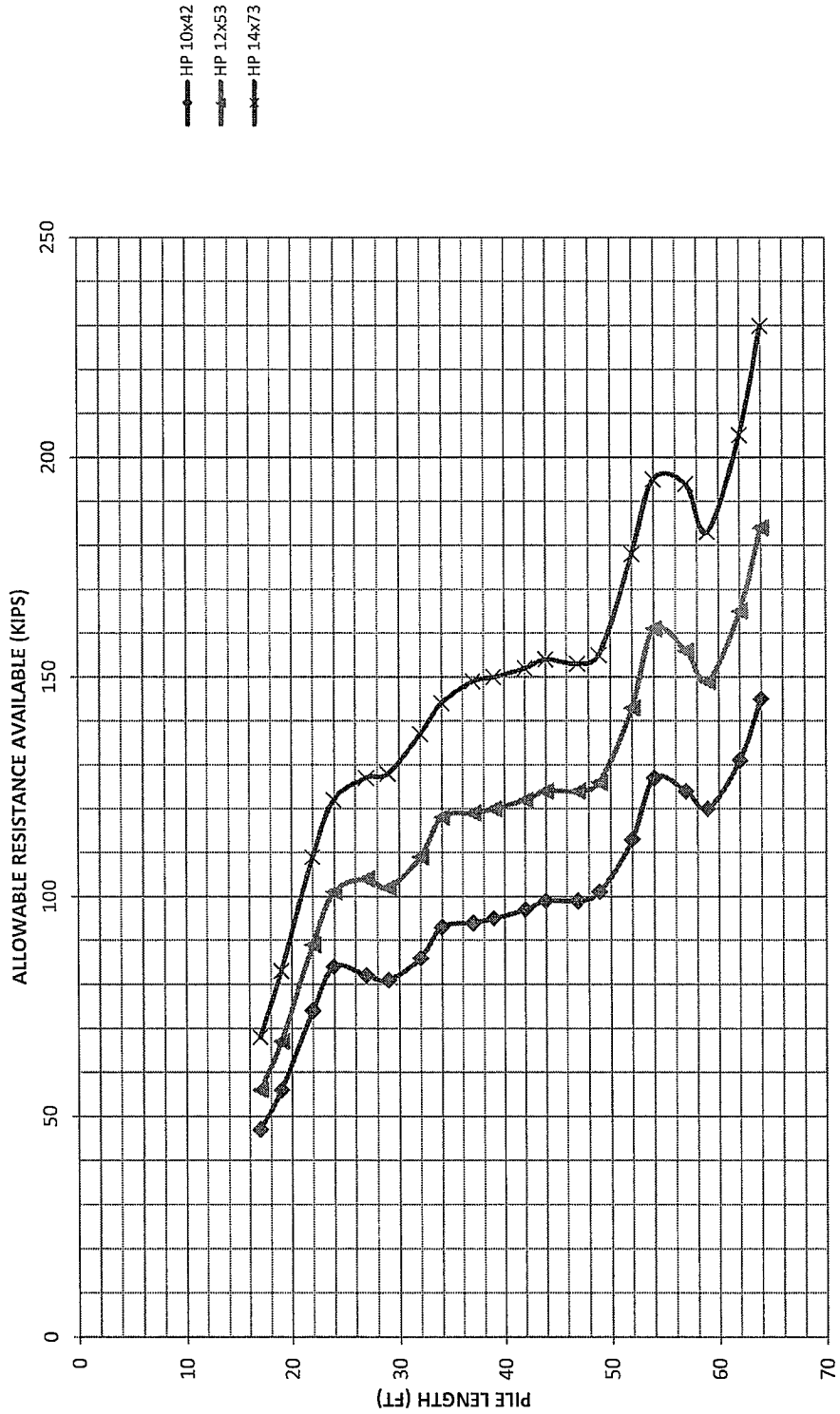
Boring BR-02 Pier 1 (Elevation 681.5 Begin Friction, 687.2 for Pile Cutoff)								
Estimated Pile Length (ft.)	HP 10x42		HP 12x53		HP 14x73		Factored Resistance Available, FRA (Kips)	Nominal Required Bearing, NRB (Kips)
	Factored Resistance Available, FRA (Kips)	Nominal Required Bearing, NRB (Kips)	Factored Resistance Available, FRA (Kips)	Nominal Required Bearing, NRB (Kips)	Factored Resistance Available, FRA (Kips)	Nominal Required Bearing, NRB (Kips)		
20	56	103	68	123	82	149		
23	61	111	73	133	89	161		
25	66	121	79	144	96	175		
28	72	132	87	158	105	191		
30	79	143	95	172	115	209		
33	77	141	98	179	121	220		
35	78	142	99	180	124	225		
38	80	146	102	185	127	231		
40	81	147	102	185	126	230		
43	82	149	103	187	128	232		
45	87	158	109	199	136	247		
48	94	171	119	216	149	271		
50	99	180	125	228	157	286		
53	105	191	134	243	165	301		
55	117	212	145	264	176	319		
58	131	239	158	287	191	347		
60	139	252	175	319	212	385		
63	146	265	185	337	230	419		
65	146	266	184	335	229	416		
68	146	265	182	331	225	409		
70	168	306	214	388	267	486		
73					296	538		

Note: All piles reach Max Available NRB based on Pile Driving Stresses through soil layers

PILE BEARING (FRA) VS. ESTIMATED PILE LENGTH

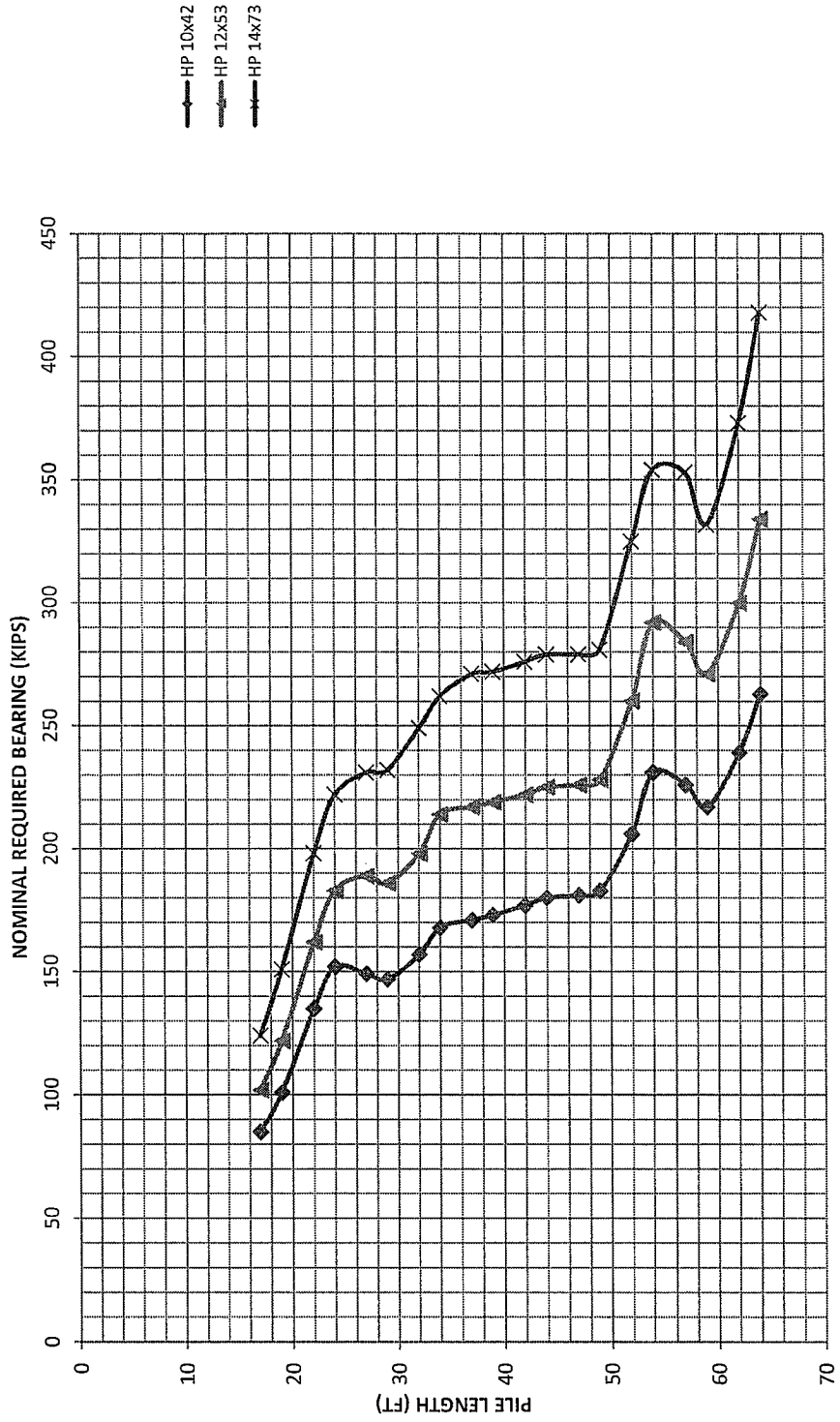
BORING B-02 (W. ABUTMENT)

Elevation 720.9 Begin Friction, 722.9 for Pile Cutoff (pile length = 0.0 feet)



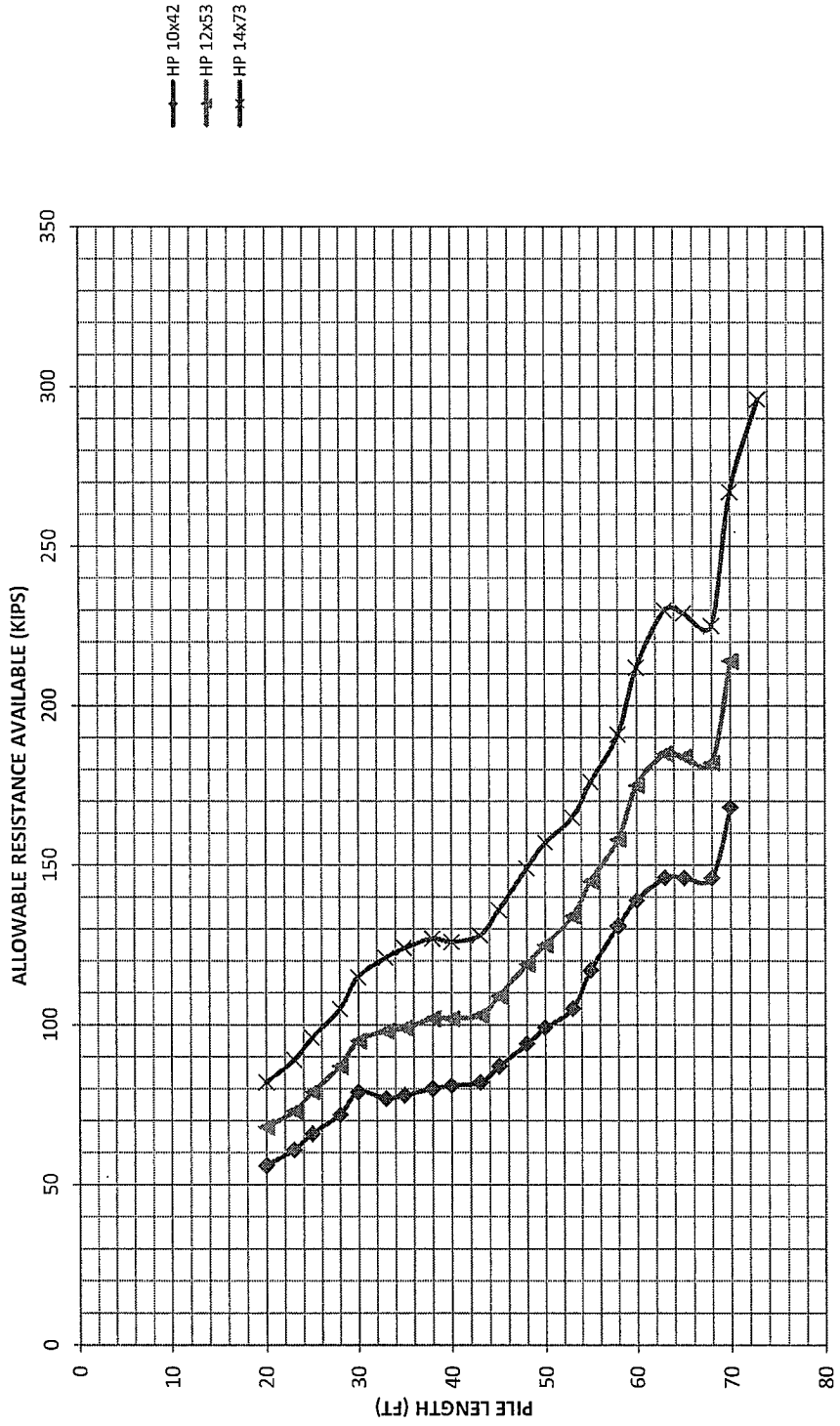
PILE BEARING (NRB) VS. ESTIMATED PILE LENGTH
BORING B-02 (W. ABUTMENT)

Elevation 720.9 Begin Friction, 722.9 for Pile Cutoff (pile length = 0.0 feet)



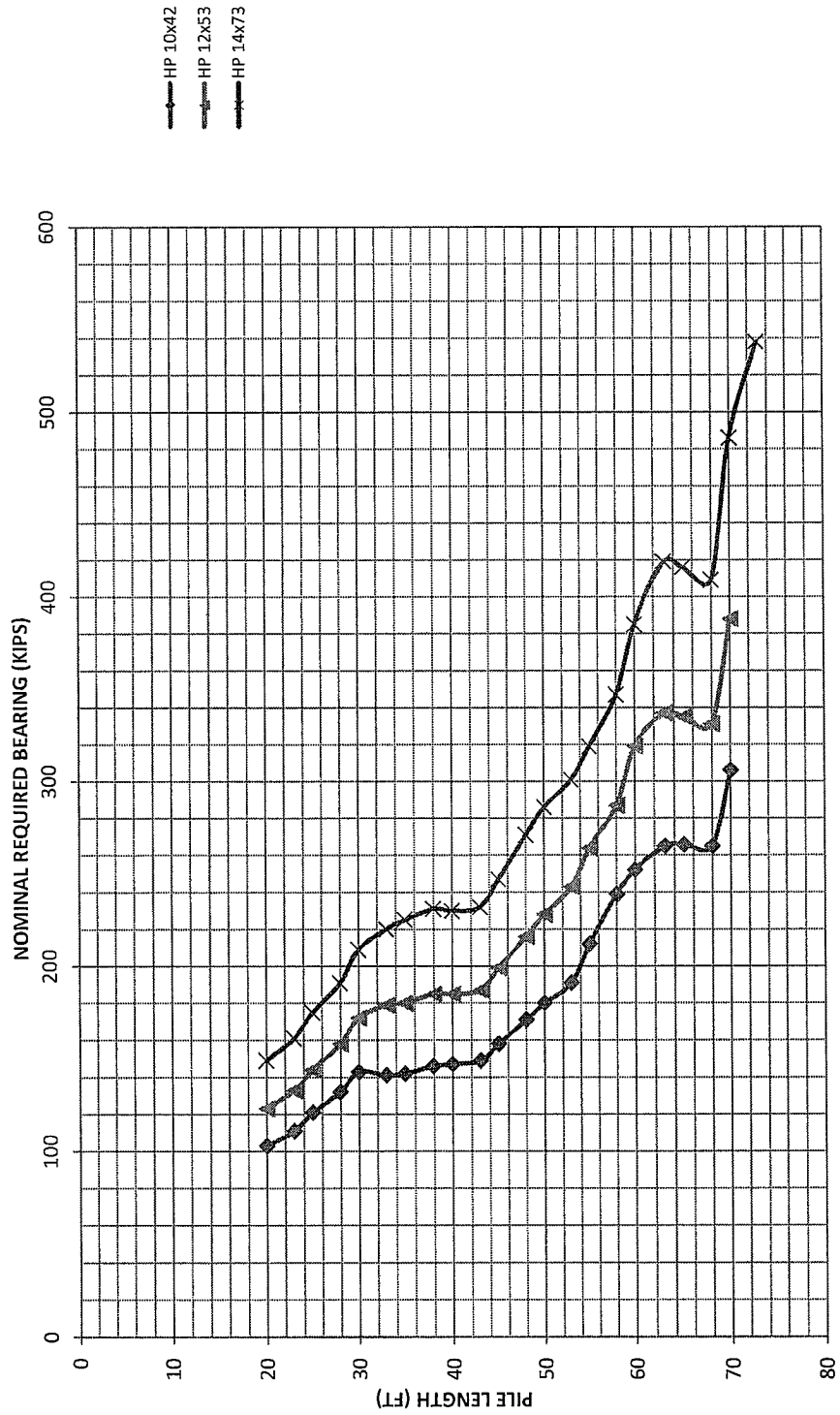
PILE BEARING (FRA) VS. ESTIMATED PILE LENGTH BORING BR-02 (PIER 1)

Elevation 681.5 Begin Friction, 687.2 for Pile Cutoff (pile length = 0.0 feet)



PILE BEARING (NRB) VS. ESTIMATED PILE LENGTH BORING BR-02 (PIER 1)

Elevation 681.5 Begin Friction, 687.2 for Pile Cutoff (pile length = 0.0 feet)



Estimated H-Pile Lengths and Capacities for SN 045-6024 Pier 2 & Pier 3

Boring BR-02 Pier 2 (Elevation 676.3 Begin Friction, 678.3 for Pile Cutoff)								
Estimated Pile Length (ft.)	HP 10x42		HP 12x53		HP 14x73		Factored Resistance Available, FRA (Kips)	Nominal Required Bearing, NRB (Kips)
	Factored Resistance Available, FRA (Kips)	Nominal Required Bearing, NRB (Kips)	Factored Resistance Available, FRA (Kips)	Nominal Required Bearing, NRB (Kips)	Factored Resistance Available, FRA (Kips)	Nominal Required Bearing, NRB (Kips)		
16	36	66	43	79	53	96		
19	42	77	51	92	62	113		
21	50	90	59	108	72	131		
24	54	99	65	118	79	143		
26	58	105	69	126	84	153		
29	60	110	73	134	89	162		
31	62	113	77	141	94	170		
34	62	113	79	144	98	178		
36	68	124	85	155	103	187		
39	74	135	90	164	109	198		
41	80	146	96	174	116	211		
44	86	156	103	187	124	226		
46	93	169	111	202	135	245		
49	104	189	124	226	151	274		
51	119	216	142	258	172	312		
54	128	233	158	287	191	348		
56	129	235	164	298	205	372		
59	128	233	161	292	199	362		
61	151	275	190	345	230	417		
64	179	325	214	389	259	472		
66					311	566		

Note: All piles reach Max Available NRB based on Pile Driving Stresses through soil layers

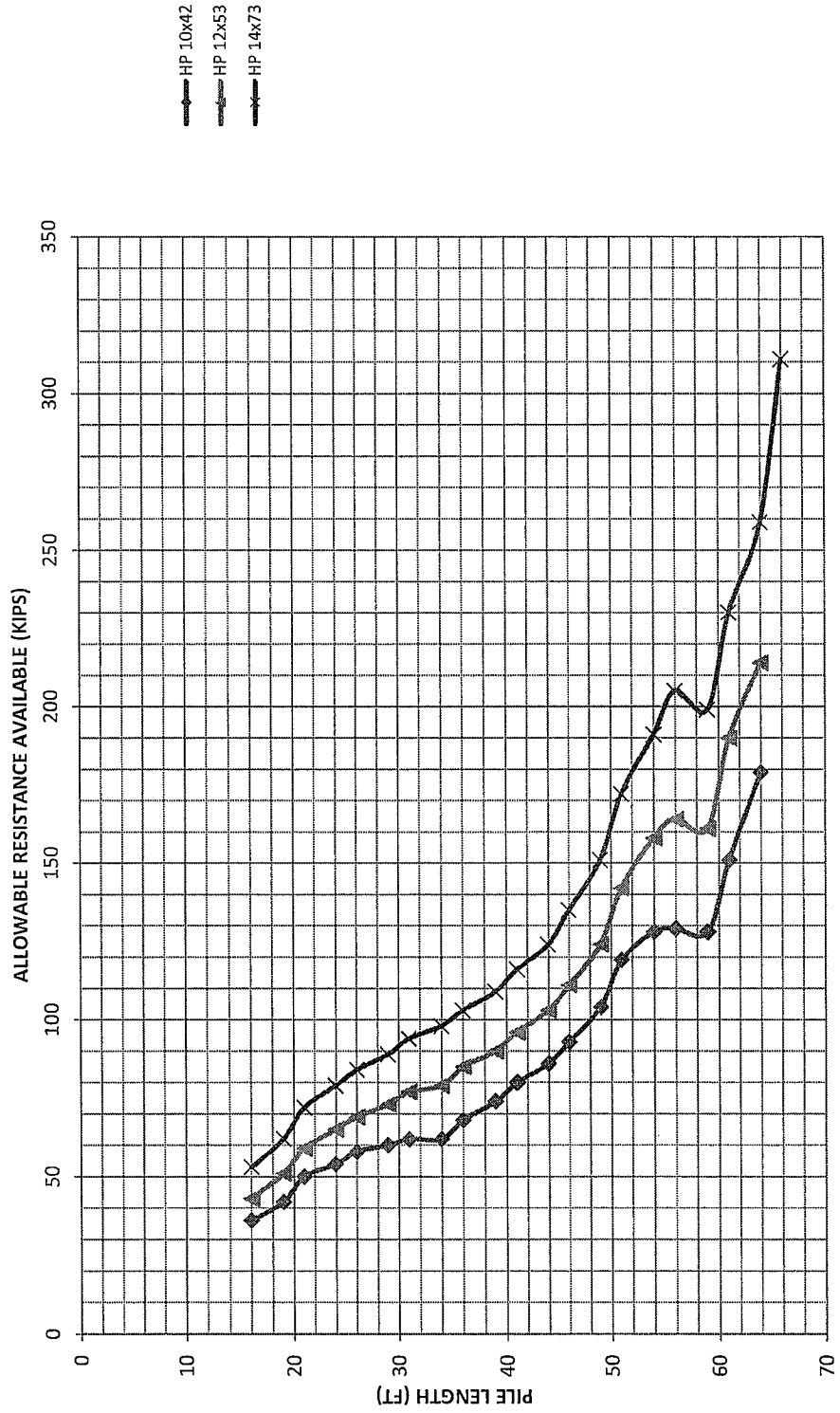
Boring BR-03 Pier 3 (Elevation 674.9 Begin Friction, 676.9 for Pile Cutoff)								
Estimated Pile Length (ft.)	HP 10x42		HP 12x53		HP 14x73		Factored Resistance Available, FRA (Kips)	Nominal Required Bearing, NRB (Kips)
	Factored Resistance Available, FRA (Kips)	Nominal Required Bearing, NRB (Kips)	Factored Resistance Available, FRA (Kips)	Nominal Required Bearing, NRB (Kips)	Factored Resistance Available, FRA (Kips)	Nominal Required Bearing, NRB (Kips)		
15	35	64	42	77	52	94		
17	45	81	53	97	65	119		
20	52	95	62	114	76	138		
22	60	109	72	130	87	158		
25	65	119	79	144	96	174		
27	57	103	71	129	88	160		
30	63	114	79	144	99	180		
32	69	126	88	161	108	195		
35	75	137	94	170	113	206		
37	82	149	99	181	120	219		
40	83	151	105	191	127	231		
42	82	149	104	189	130	236		
45	89	162	114	207	139	253		
47	96	175	121	221	147	267		
50	110	200	132	240	160	291		
52	132	241	159	289	193	351		
55	169	308	203	369	246	447		
57					299	544		

Note: All piles reach Max Available NRB based on Pile Driving Stresses through soil layers

PILE BEARING (FRA) VS. ESTIMATED PILE LENGTH

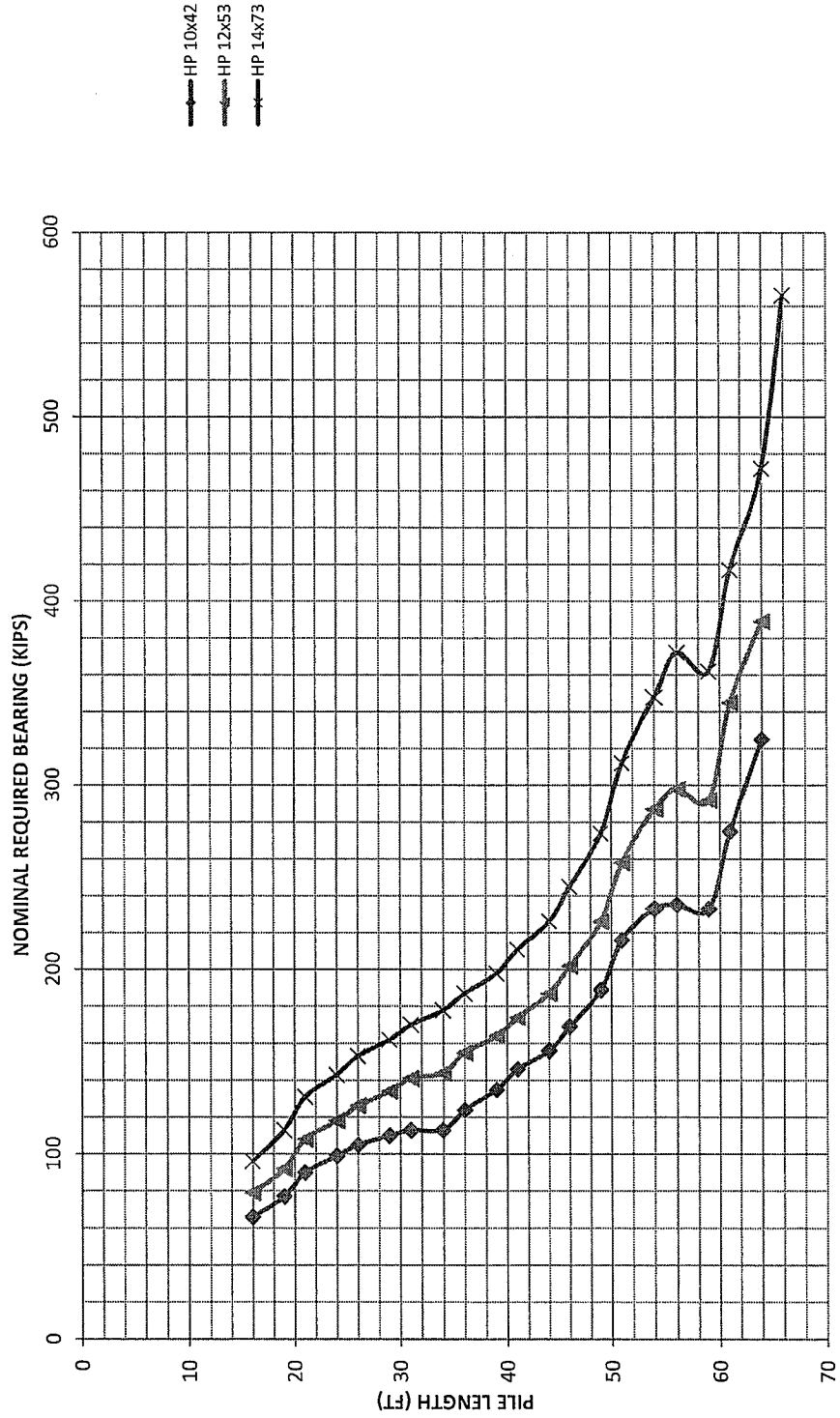
BORING BR-02 (PIER 2)

Elevation 676.3 Begin Friction, 678.3 for Pile Cutoff (pile length = 0.0 feet)



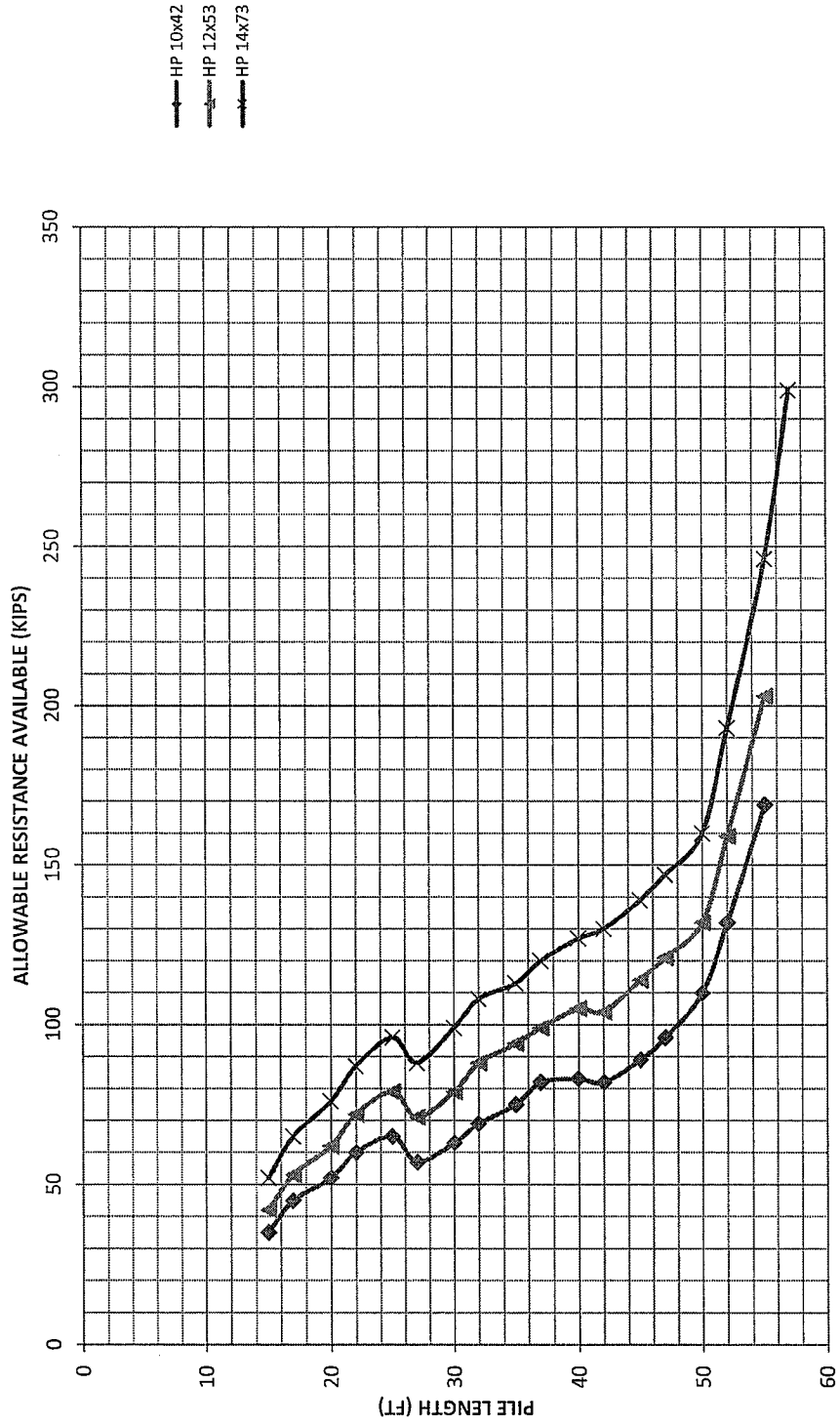
PILE BEARING (NRB) VS. ESTIMATED PILE LENGTH BORING BR-02 (PIER 2)

Elevation 676.3 Begin Friction, 678.3 for Pile Cutoff (pile length = 0.0 feet)



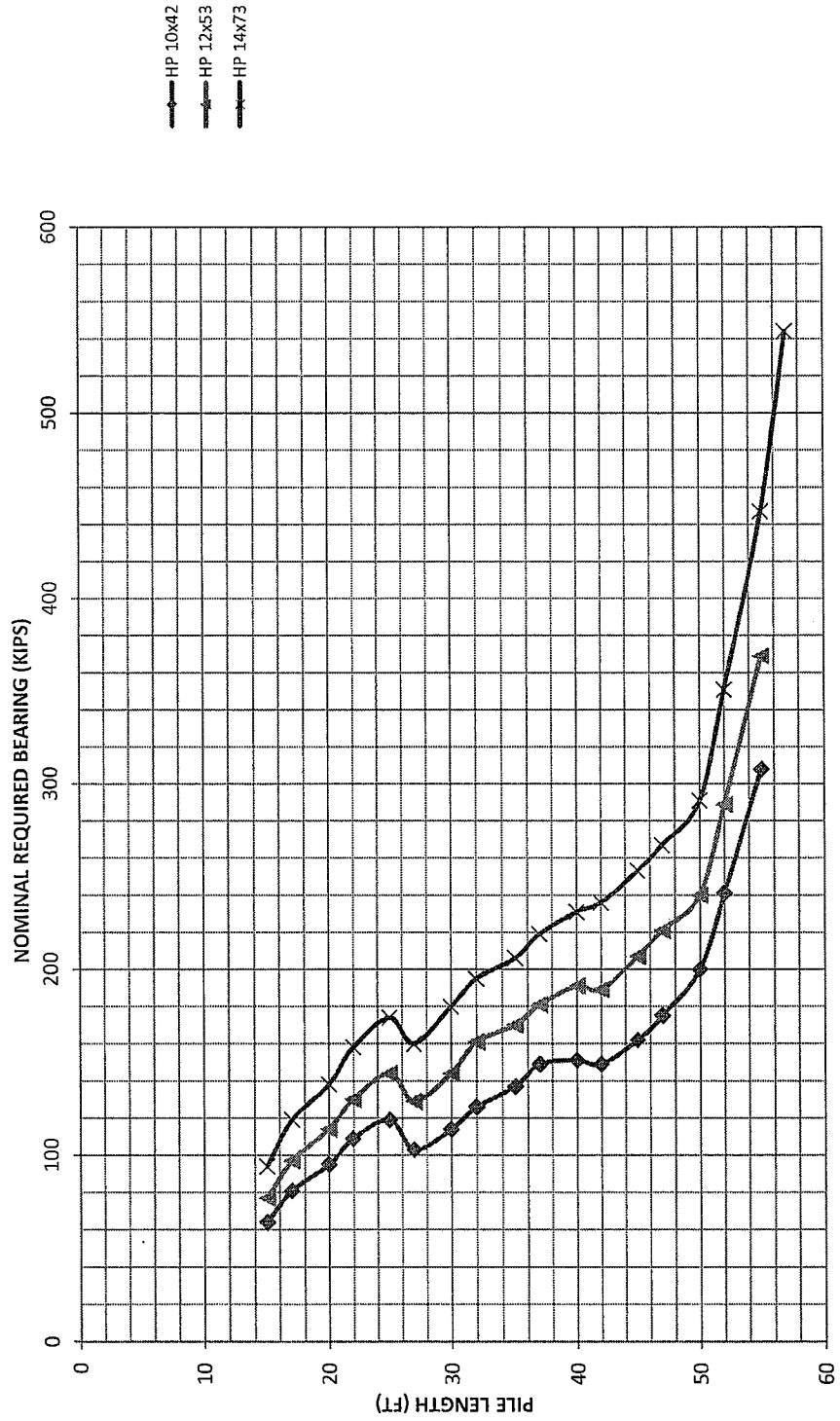
PILE BEARING (FRA) VS. ESTIMATED PILE LENGTH BORING BR-03 (PIER 3)

Elevation 674.9 Begin Friction, 676.9 for Pile Cutoff (pile length = 0.0 feet)



PILE BEARING (NRB) VS. ESTIMATED PILE LENGTH
BORING BR-03 (PIER 3)

Elevation 674.9 Begin Friction, 676.9 for Pile Cutoff (pile length = 0.0 feet)



Estimated H-Pile Lengths and Capacities for SN 045-6024 Pier 4 & Pier 5

Boring BR-04 Pier 4 (Elevation 678.5 Begin Friction, 680.5 for Pile Cutoff)								
Estimated Pile Length (ft.)	HP 10x42		HP 12x53		HP 14x73		Factored Resistance Available, FRA (Kips)	Nominal Required Bearing, NRB (Kips)
	Factored Resistance Available, FRA (Kips)	Nominal Required Bearing, NRB (Kips)	Factored Resistance Available, FRA (Kips)	Nominal Required Bearing, NRB (Kips)	Factored Resistance Available, FRA (Kips)	Nominal Required Bearing, NRB (Kips)		
4	2	3	2	4	3	5		
6	6	12	8	14	9	17		
9	11	20	14	25	17	31		
11	19	35	23	42	29	52		
14	23	42	28	50	34	62		
16	27	49	33	59	40	73		
19	35	64	43	78	53	96		
21	56	101	67	122	82	149		
24	77	141	93	169	113	206		
26	98	178	117	213	143	259		
29	115	209	139	253	168	306		
31	110	200	139	252	173	314		
34	115	209	145	264	181	330		
36	122	221	154	280	193	350		
39	124	225	156	283	193	352		
41	125	227	156	284	193	351		
44	131	238	164	298	204	370		
46	136	248	171	312	213	387		
49	145	263	182	331	227	412		
51	154	279	194	353	242	440		
54	157	285	197	358	244	444		
56	159	290	199	362	246	447		
59	166	301	207	377	256	466		
61	173	314	216	393	268	486		
64	179	326	225	408	278	505		
66					290	527		
69					303	552		

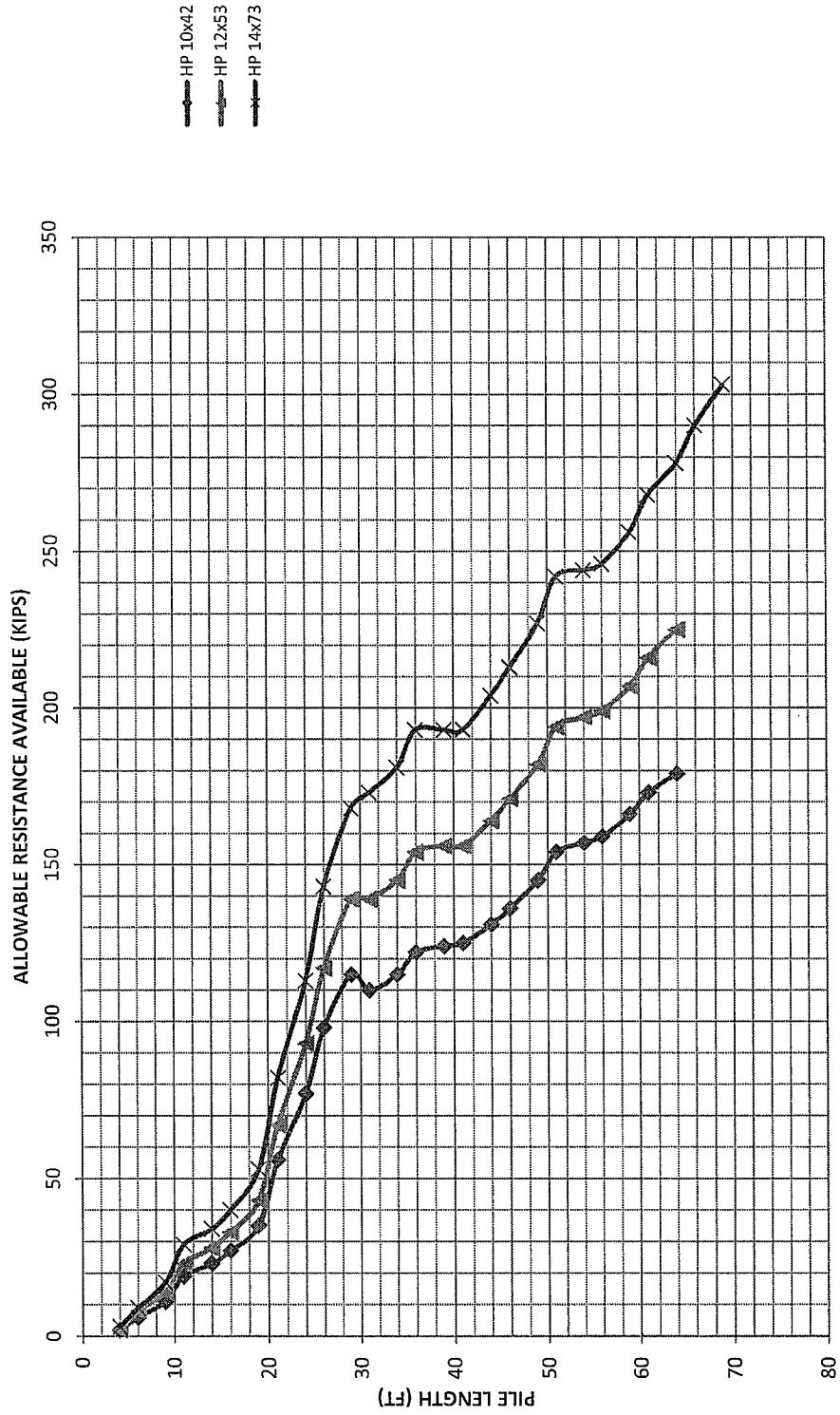
Note: All piles reach Max Available NRB based on Pile Driving Stresses through soil layers

Boring BR-05 Pier 5 (Elevation 683.0 Begin Friction, 685.0 for Pile Cutoff)								
Estimated Pile Length (ft.)	HP 10x42		HP 12x53		HP 14x73		Factored Resistance Available, FRA (Kips)	Nominal Required Bearing, NRB (Kips)
	Factored Resistance Available, FRA (Kips)	Nominal Required Bearing, NRB (Kips)	Factored Resistance Available, FRA (Kips)	Nominal Required Bearing, NRB (Kips)	Factored Resistance Available, FRA (Kips)	Nominal Required Bearing, NRB (Kips)		
2	1	3	2	3	2	3		
5	10	19	12	22	14	26		
7	19	35	23	41	27	49		
10	16	29	20	36	24	44		
12	21	38	27	49	33	61		
15	22	40	27	49	32	59		
17	26	46	32	57	39	70		
20	40	72	47	86	58	105		
22	48	86	57	104	70	128		
25	69	125	83	150	101	183		
27	86	156	103	187	125	227		
30	102	185	122	222	148	269		
32	116	211	139	253	168	306		
35	118	215	150	273	184	335		
37	125	228	160	290	196	356		
40	133	242	169	308	209	380		
42	157	285	188	342	227	414		
45	182	331	218	396	264	480		
47					311	566		

Note: All piles reach Max Available NRB based on Pile Driving Stresses through soil layers

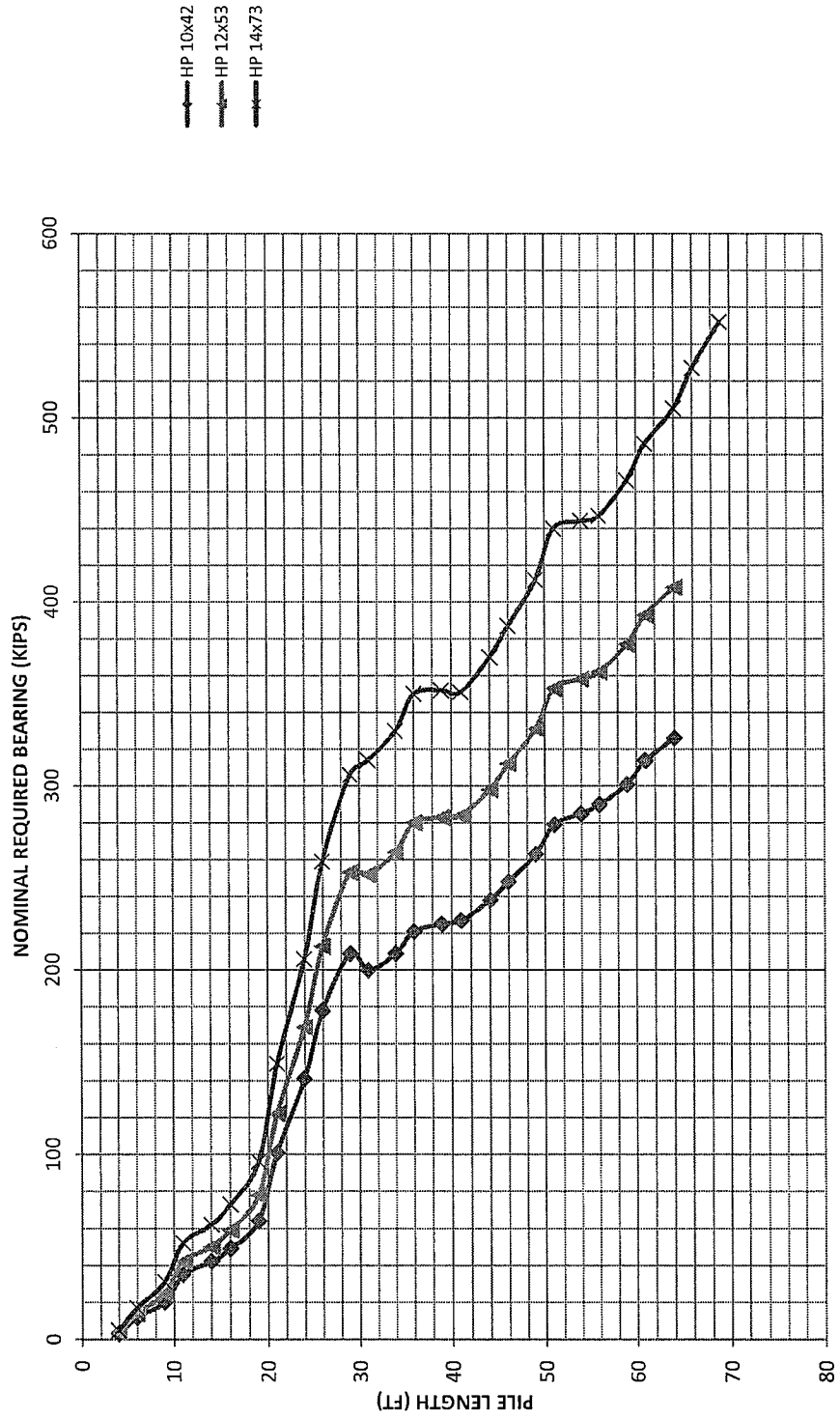
PILE BEARING (FRA) VS. ESTIMATED PILE LENGTH BORING BR-04 (PIER 4)

Elevation 678.5 Begin Friction, 680.5 for Pile Cutoff (pile length = 0.0 feet)



PILE BEARING (NRB) VS. ESTIMATED PILE LENGTH BORING BR-04 (PIER 4)

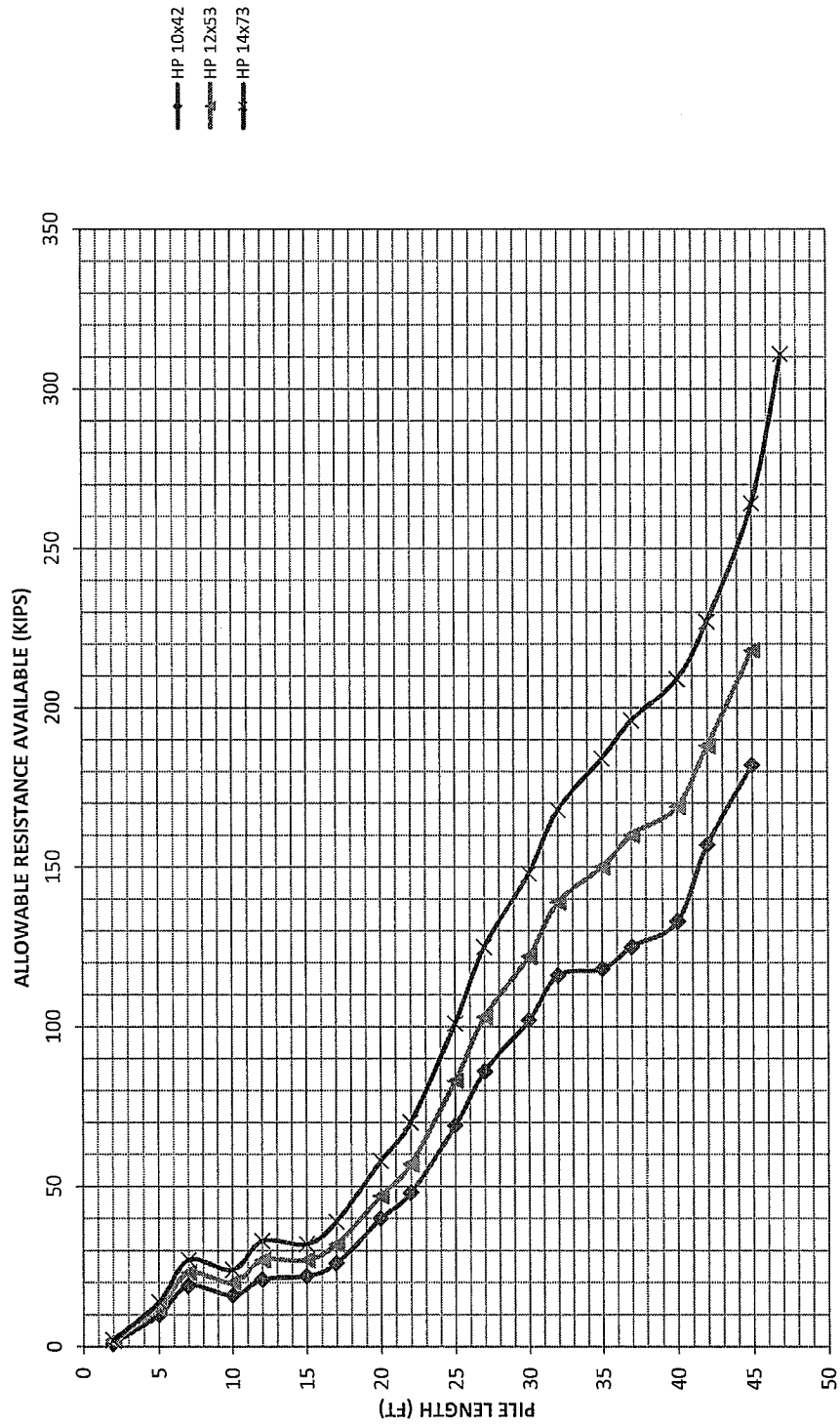
Elevation 678.5 Begin Friction, 680.5 for Pile Cutoff (pile length = 0.0 feet)



PILE BEARING (FRA) VS. ESTIMATED PILE LENGTH

BORING BR-05 (PIER 5)

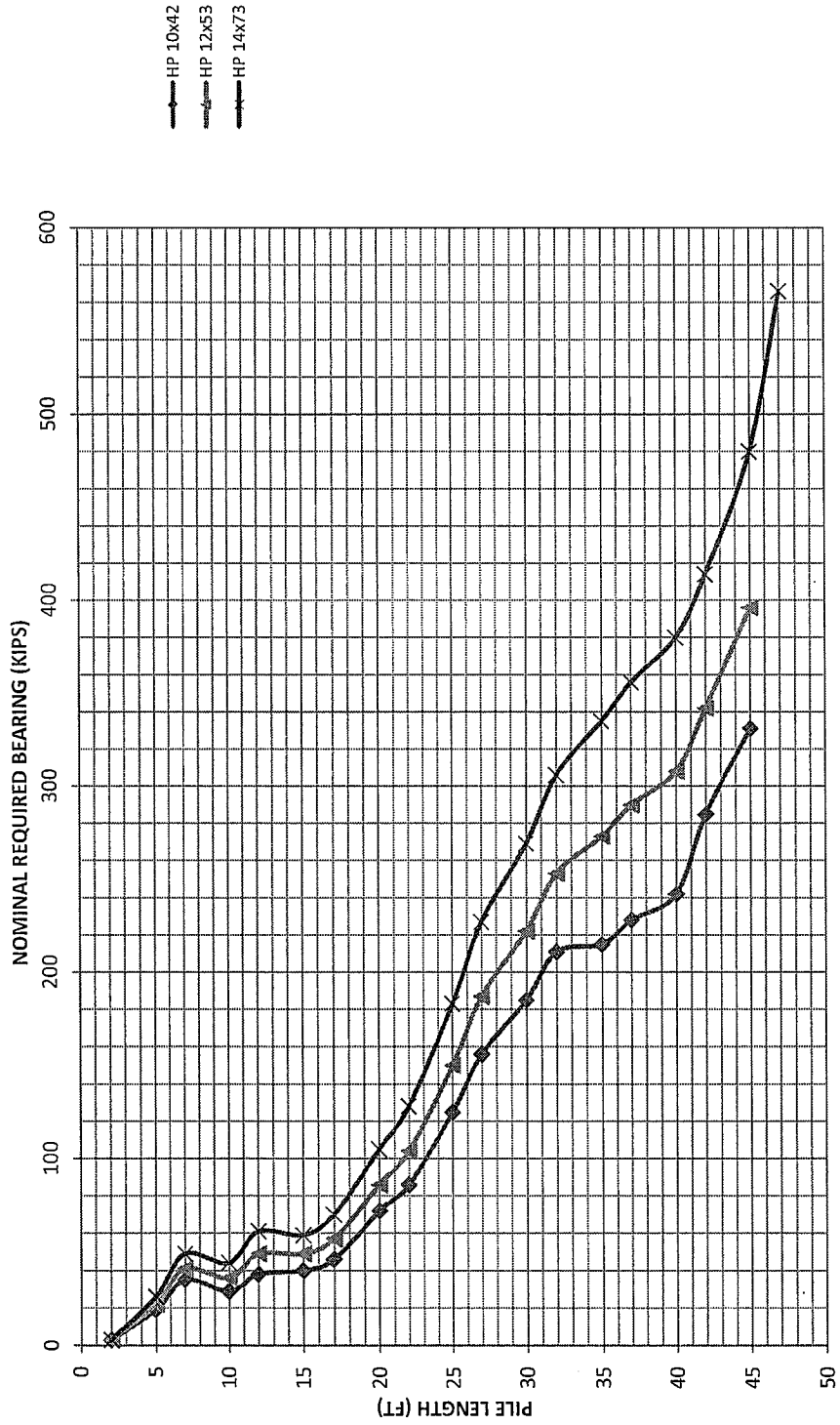
Elevation 683.0 Begin Friction, 685.0 for Pile Cutoff (pile length = 0.0 feet)



PILE BEARING (NRB) VS. ESTIMATED PILE LENGTH

BORING BR-05 (PIER 5)

Elevation 683.0 Begin Friction, 685.0 for Pile Cutoff (pile length = 0.0 feet)



Estimated H-Pile Lengths and Capacities for SN 045-6024 Pier 6 & Pier 7

Boring BR-06 Pier 6 (Elevation 684.2 Begin Friction, 686.2 for Pile Cutoff)								
Estimated Pile Length (ft.)	HP 10x42		HP 12x53		HP 14x73		Factored Resistance Available, FRA (Kips)	Nominal Required Bearing, NRB (Kips)
	Factored Resistance Available, FRA (Kips)	Nominal Required Bearing, NRB (Kips)	Factored Resistance Available, FRA (Kips)	Nominal Required Bearing, NRB (Kips)	Factored Resistance Available, FRA (Kips)	Nominal Required Bearing, NRB (Kips)		
10	11	20	14	25	17	31		
13	15	27	19	35	24	43		
15	20	37	26	47	32	58		
18	23	42	29	52	35	64		
20	37	67	44	80	54	98		
23	45	82	54	99	67	121		
25	62	113	75	136	91	166		
28	76	137	90	165	110	200		
30	85	155	102	186	124	225		
33	93	169	111	203	135	245		
35	102	185	121	221	147	267		
38	104	189	132	240	159	290		
40	106	192	134	244	168	305		
43	110	199	139	252	173	315		
45	113	206	143	261	179	325		
48	135	245	163	296	197	358		
50	154	279	184	334	223	405		
53	182	331	218	396	264	480		
55					314	572		

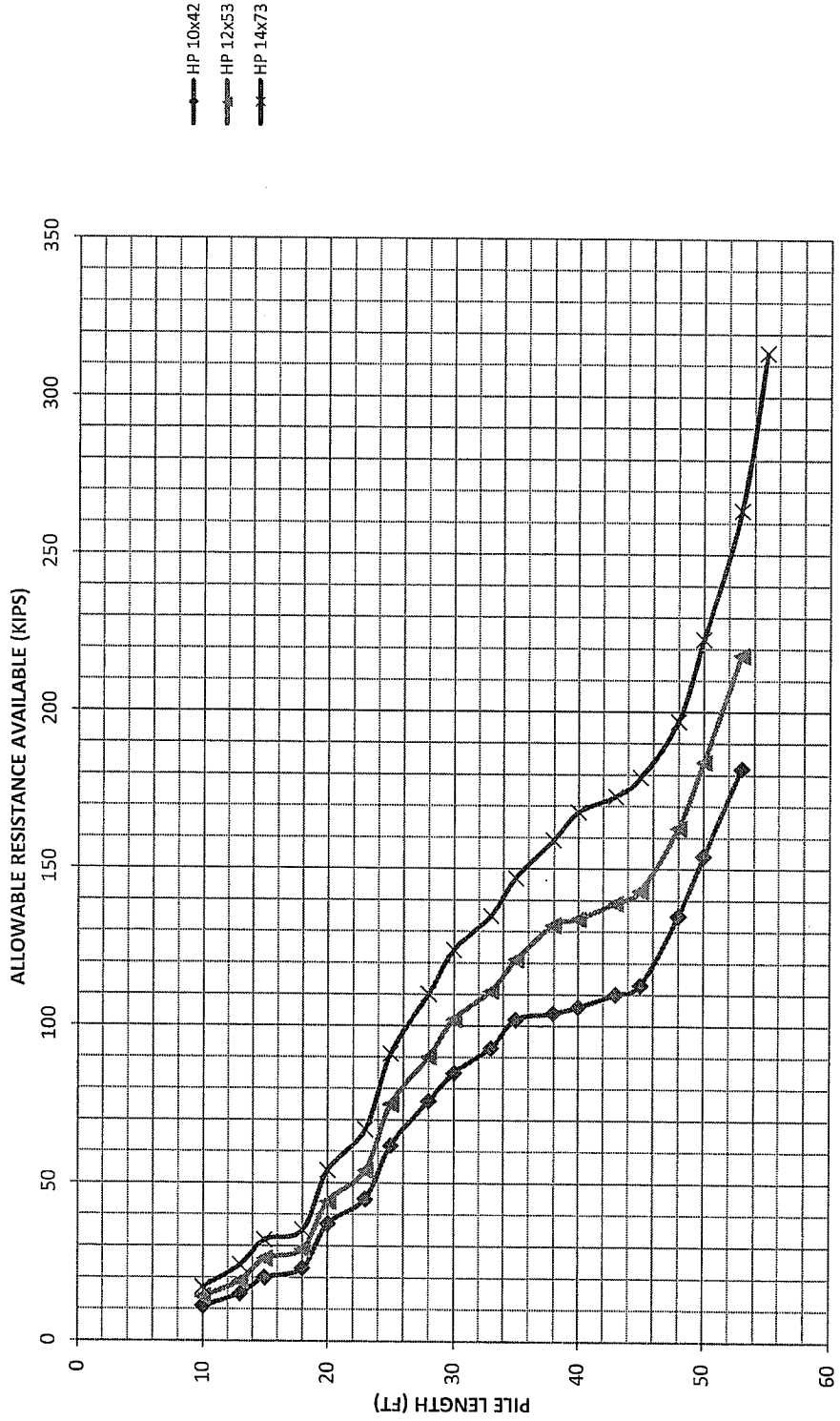
Note: All piles reach Max Available NRB based on Pile Driving Stresses through soil layers

Boring BR-07 Pier 7 (Elevation 686.2 Begin Friction, 688.2 for Pile Cutoff)								
Estimated Pile Length (ft.)	HP 10x42		HP 12x53		HP 14x73		Factored Resistance Available, FRA (Kips)	Nominal Required Bearing, NRB (Kips)
	Factored Resistance Available, FRA (Kips)	Nominal Required Bearing, NRB (Kips)	Factored Resistance Available, FRA (Kips)	Nominal Required Bearing, NRB (Kips)	Factored Resistance Available, FRA (Kips)	Nominal Required Bearing, NRB (Kips)		
3	1	2	1	2	1	2		
5	4	7	5	8	5	10		
8	5	10	6	12	8	14		
10	12	21	14	26	17	32		
13	16	29	19	35	24	43		
15	21	38	25	46	31	57		
18	27	49	33	59	40	73		
20	34	61	40	74	50	90		
23	41	75	50	90	60	110		
25	50	90	60	108	73	132		
28	61	111	73	133	89	162		
30	73	133	87	159	106	193		
33	86	157	103	188	126	229		
35	104	189	125	227	151	275		
38	125	228	150	272	182	330		
40	146	265	174	317	211	384		
43	158	288	198	360	239	435		
45	169	307	215	391	265	482		
48	169	308	212	386	263	479		
50	166	302	207	376	254	461		
53	173	314	215	391	264	481		
55	181	329	226	410	278	506		
58								
60								

Note: All piles reach Max Available NRB based on Pile Driving Stresses through soil layers

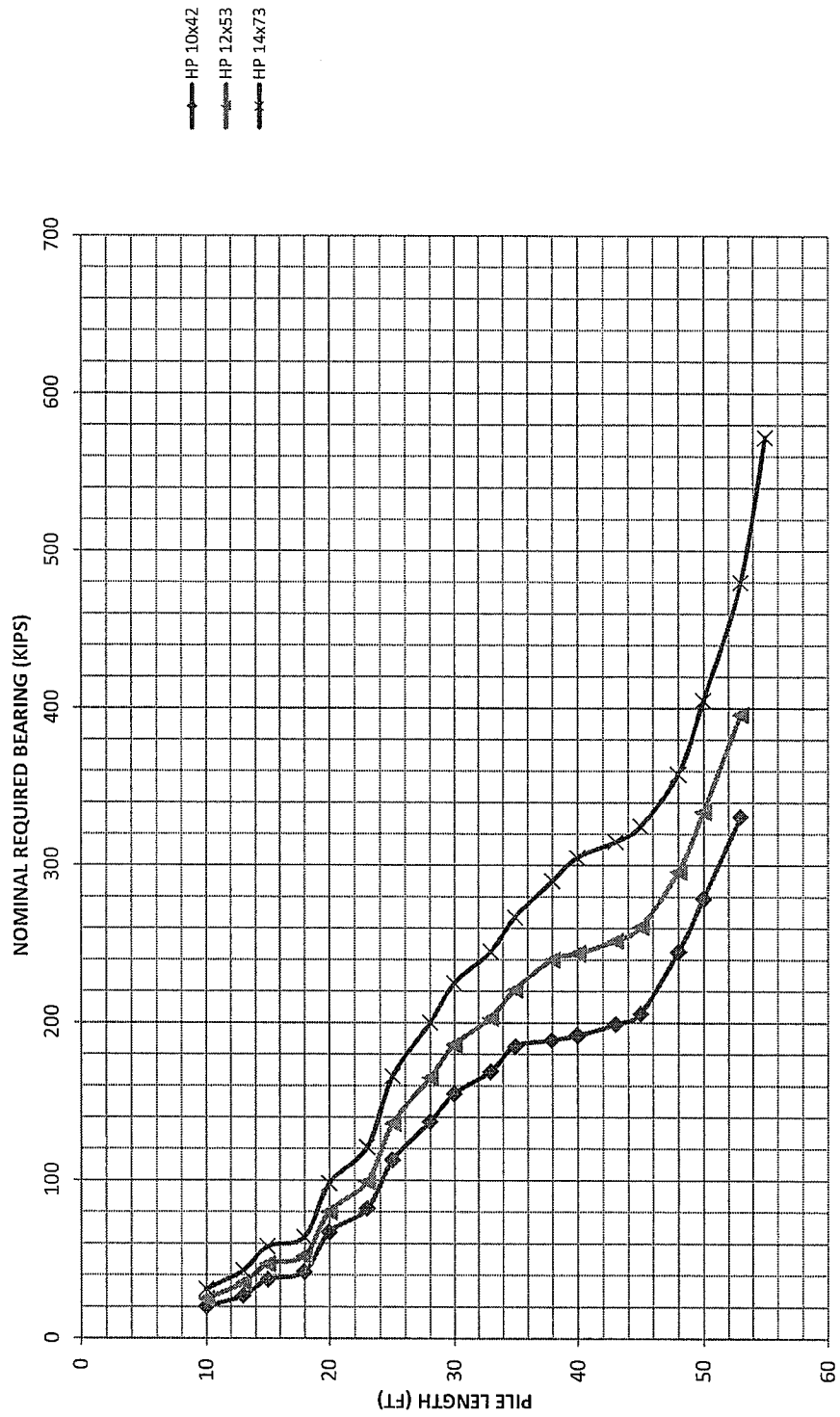
PILE BEARING (FRA) VS. ESTIMATED PILE LENGTH BORING BR-06 (PIER 6)

Elevation 684.2 Begin Friction, 686.2 for Pile Cutoff (pile length = 0.0 feet)



PILE BEARING (NRB) VS. ESTIMATED PILE LENGTH BORING BR-06 (PIER 6)

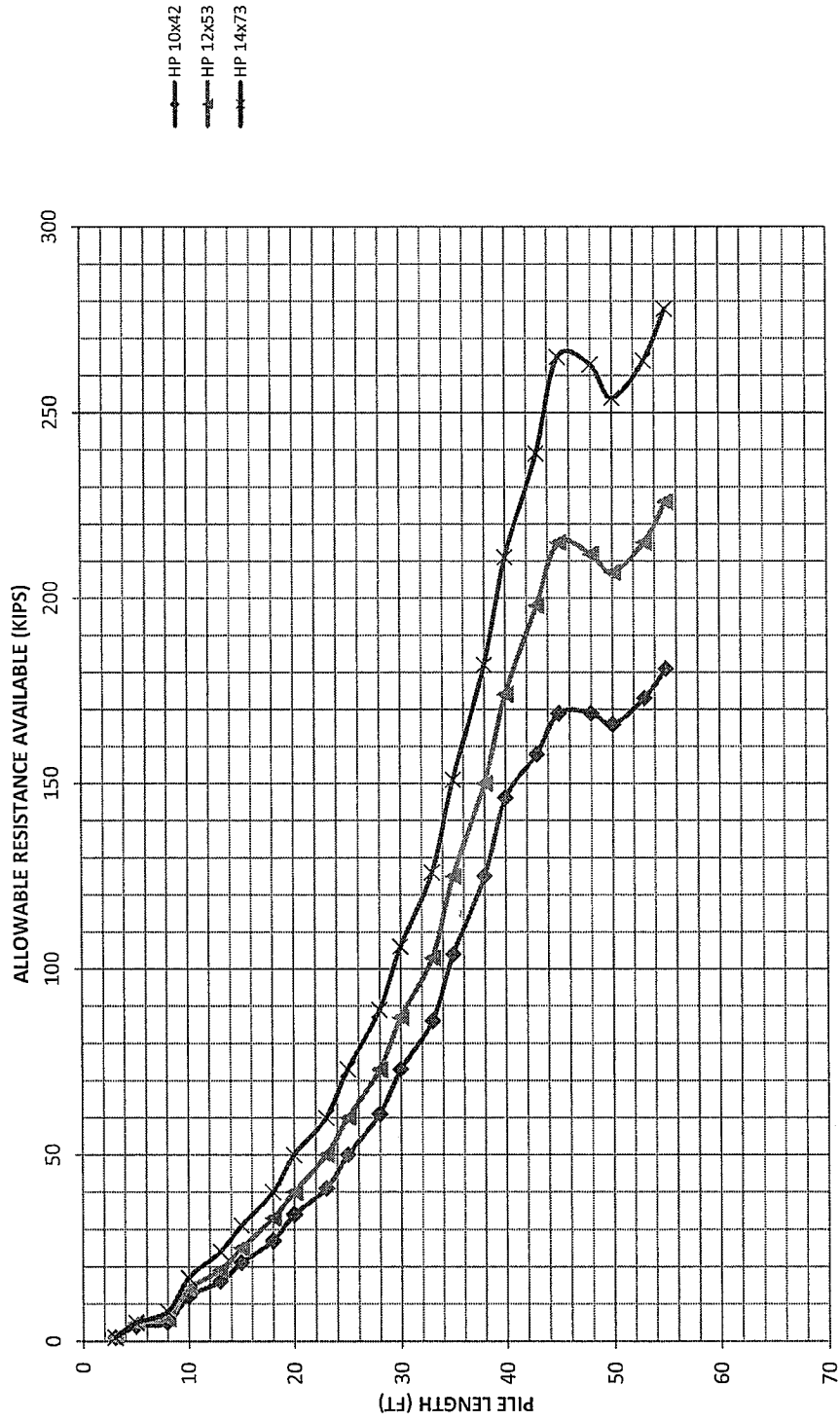
Elevation 684.2 Begin Friction, 686.2 for Pile Cutoff (pile length = 0.0 feet)



PILE BEARING (FRA) VS. ESTIMATED PILE LENGTH

BORING BR-07 (PIER 7)

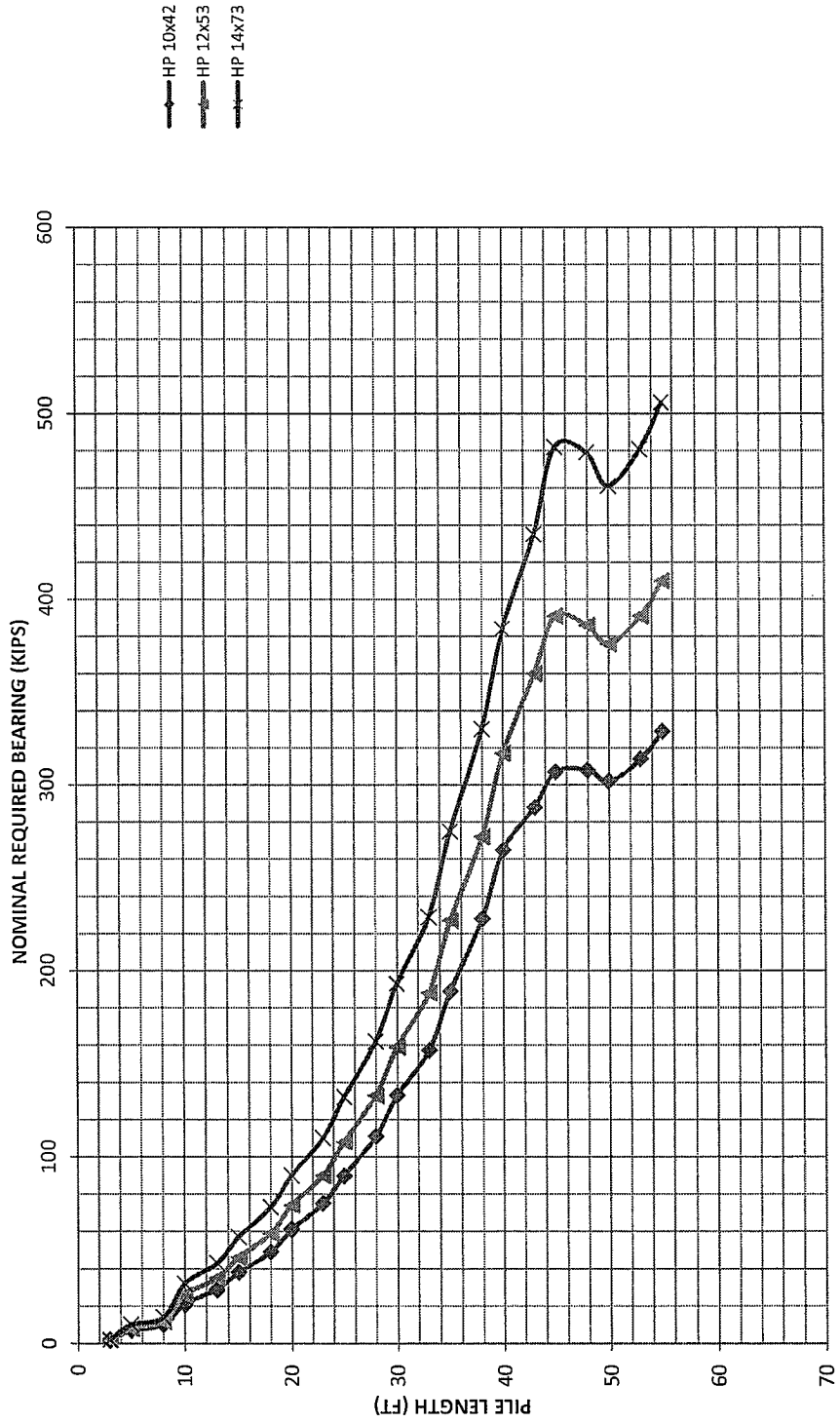
Elevation 686.2 Begin Friction, 688.2 for Pile Cutoff (pile length = 0.0 feet)



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PILE BEARING (NRB) VS. ESTIMATED PILE LENGTH BORING BR-07 (PIER 7)

Elevation 686.2 Begin Friction, 688.2 for Pile Cutoff (pile length = 0.0 feet)



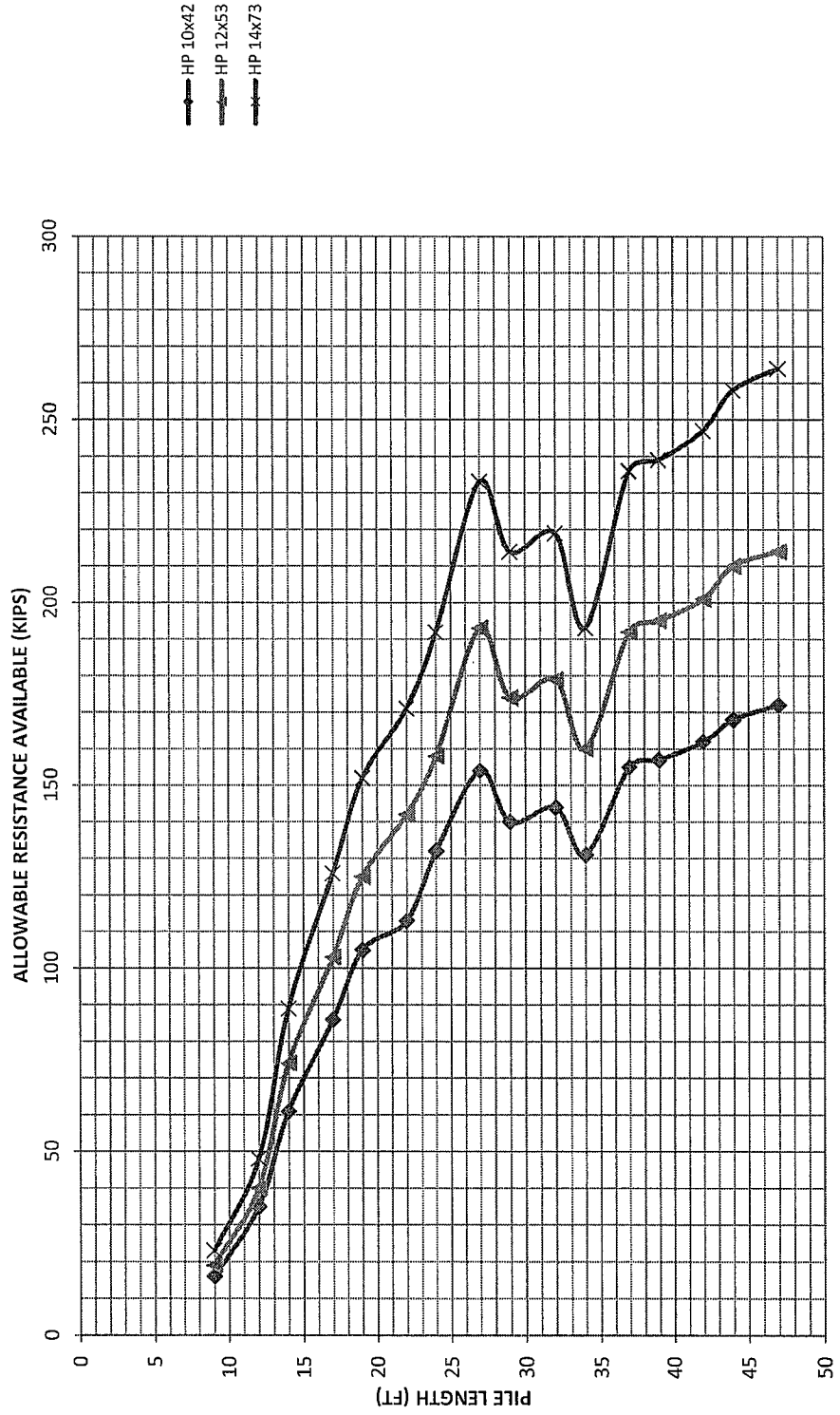
Estimated H-Pile Lengths and Capacities for SN 045-6024 East Abutment

Boring BR-08 E Abutment (Elevation 704.4 Begin Friction, 710.8 for Pile Cutoff)								
Estimated Pile Length (ft.)	HP 10x42		HP 12x53		HP 14x73		Factored Resistance Available, FRA (Kips)	Nominal Required Bearing, NRB (Kips)
	Factored Resistance Available, FRA (Kips)	Nominal Required Bearing, NRB (Kips)	Factored Resistance Available, FRA (Kips)	Nominal Required Bearing, NRB (Kips)	Factored Resistance Available, FRA (Kips)	Nominal Required Bearing, NRB (Kips)		
9	16	30	19	35	23	42		
12	35	63	40	73	48	88		
14	61	111	74	134	89	162		
17	86	157	103	188	126	229		
19	105	191	125	228	152	277		
22	113	205	142	258	171	312		
24	132	239	158	287	192	348		
27	154	280	193	350	233	424		
29	140	255	174	317	214	388		
32	144	261	179	325	219	399		
34	131	239	160	291	193	350		
37	155	281	192	350	236	430		
39	157	286	195	355	239	435		
42	162	295	201	366	247	449		
44	168	306	210	381	258	469		
47	172	313	214	390	264	479		

Note: All piles reach Max Available NRB based on Pile Driving Stresses through soil layers

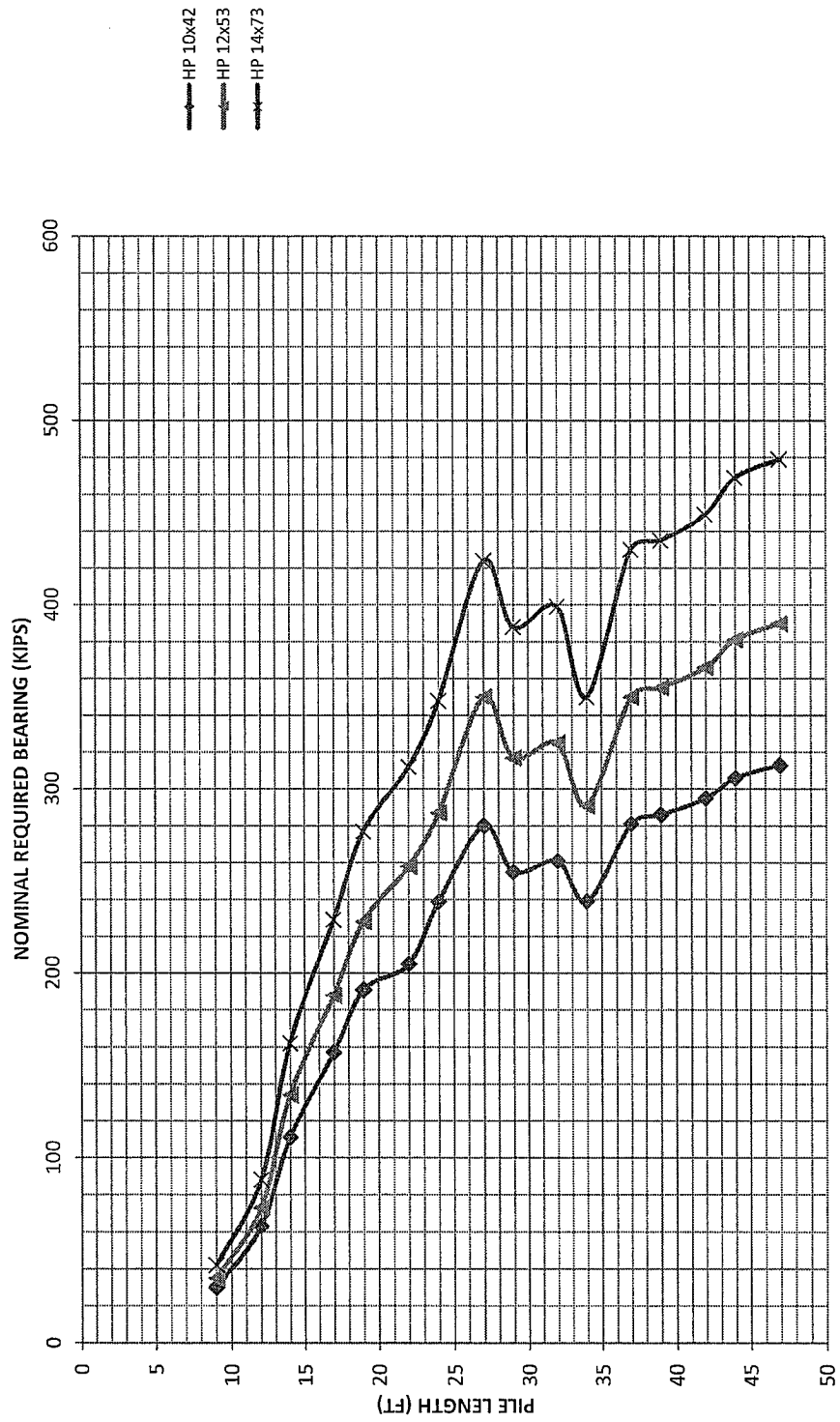
PILE BEARING (FRA) VS. ESTIMATED PILE LENGTH BORING BR-08 (E. ABUTMENT)

Elevation 704.4 Begin Friction, 710.8 for Pile Cutoff (pile length = 0.0 feet)



PILE BEARING (NRB) VS. ESTIMATED PILE LENGTH
BORING BR-08 (E. ABUTMENT)

Elevation 704.4 Begin Friction, 710.8 for Pile Cutoff (pile length = 0.0 feet)



APPENDIX F
BORING LOGS BY OTHERS

ILLINOIS DEPARTMENT OF TRANSPORTATION
Testing Service Corporation
STRUCTURE BORING LOG

Date Started 5/10/05

Date Completed 5/10/05

ROUTE _____ DESCRIPTION Red Gate Road over Fox River

SECT. _____ STRUCT. NO. _____ DRILLED BY TSC L-62,164

COUNTY Kane LOCATION _____ S. 15 - CNTR, TWP. 40 N, RNG. 8 E

Boring No.	Station	Offset	Surface Elev.	D E P T H	B L O W S	Qu tsf	W %	Surface Water Elev.	Groundwater Elev. when drilling at Completion after _____ Hrs.	D E P T H	B L O W S	Qu tsf	W %
B-1	104+50	0.00ft RT	739.00 ft										
Black clayey Topsoil	738.00												
Medium stiff to stiff dark brown SILTY CLAY, trace organic, moist A-6(24) Qp = 1.75 tsf	736.00				2 3 2	B 0.9 15%	26.8		Dry Dry				
Stiff reddish-brown CLAY, moist A-6	733.50				3 3 3	B 1.3 15%	26.9						
Stiff reddish-brown CLAY, trace gravel, moist A-6	731.00				4 5 6	B 1.3 15%	25.9						
Medium dense brown clayey SAND and GRAVEL, moist A-1-b	728.50				4 6 7		16.1						
Medium dense to loose brown SAND and GRAVEL, trace silt and clay, damp A-1-a	724.00				8 6 6		7.3						
					4 4 5		8.7						
End of Boring at 15.0'													
Diedrich D-120 Truck Rig (#282) CME Automatic Hammer													

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SPT. (N) = Sum of last two blow values in sample. (Qu) B=Bulge S=Shear P=Penetration Test
Stations, Depths, Offset, and Elevations are in Feet

ILLINOIS DEPARTMENT OF TRANSPORTATION
Testing Service Corporation
STRUCTURE BORING LOG

Date Started 5/10/05

Date Completed 5/10/05

ROUTE _____ DESCRIPTION Red Gate Road over Fox River

SECT. _____ STRUCT. NO. _____ DRILLED BY TSC L-62,164

COUNTY Kane LOCATION West Abutment S. 15 - CNTR, TWP. 40 N, RNG. 8 E

Boring No. <u>B-2</u>	D	B	L	O	W	Surface Water Elev. _____	D	B	L	O	W	S	Qu	W
Station <u>108+25</u>	E					Groundwater Elev.: _____	E							
Offset <u>0.00ft RT</u>	P					when drilling <u>684.9</u>	T							
Surface Elev. <u>741.90</u> ft	H	S	Qu	W		at Completion <u>676.9</u>	H	S	Qu	W				
			tsf	%		after _____ Hrs. _____								
Dark brown and black clayey Topsoil														
740.90														
Very stiff brown CLAY, trace organic, moist A-6		4	B		23.6			13						
		4	3.1					22						4.2
		5	15%					25						
738.90														
		12			4.1			7						
		16						22						4.0
		16						24						
	-5													
						711.40								
		18			3.7			18	B					
		26						25	3.1					11.9
		38						26	15%					
Dense to very dense brown and gray SAND and GRAVEL, numerous Cobbles, (rock fragments recovered), damp A-1-a						708.90								
		11			3.9			7	B					
		23						10	1.5					10.0
		28						16	15%					
	-10					706.40								
		21			3.0			13	S					
		28						22	0.4					19.6
		26						25	10%					
728.90														
Medium dense brown SAND and GRAVEL, occasional Cobbles, damp A-1-a						702.90								
		8			3.8			36						11.9
		10						50/2"						
		15												5.1
	-15													
		15			3.4									
		26												
		25												
Dense brown and gray SAND and GRAVEL, numerous Cobbles, (rock fragments recovered), damp A-1-a														
		10			3.0			16						
		13						19						3.4
		22						22						
	-20													
		33			5.1									
		20												
		22				694.90								
718.90														
Medium dense brown and gray SAND and GRAVEL, occasional Cobbles, damp A-1-a														
		4			2.6			20						
		10						16						3.9
		16						14						
	-25					691.90								

DOT: 62164.000 DOT.GPJ 4/21/06

SPT. (N) = Sum of last two blow values in sample. (Qu) B=Bulge S=Shear P=Penetration Test
Stations, Depths, Offset, and Elevations are in Feet

ILLINOIS DEPARTMENT OF TRANSPORTATION
Testing Service Corporation
STRUCTURE BORING LOG

Page 2 of 2
Date Started 5/10/05
Date Completed 5/10/05

STRUCTURE NO. _____
ROUTE _____
SECTION _____
COUNTY Kane

STRUCTURE NO. _____
ROUTE _____
SECTION _____
COUNTY Kane

Boring No. <u>B-2</u>	D E P T H	B L O W S	Qu tsf	W %	Elevation <u>666.90</u> ft	D E P T H	B L O W S	Qu tsf	W %
Station <u>108+25</u>									
Offset <u>0.00ft RT</u>									
Elevation <u>691.90</u> ft									
Dense brown and gray SAND, some gravel, damp A-1-b		23 20 22	3.2		Very dense to dense brown and gray SAND, little to some gravel, saturated A-1-b		26 19 18		16.4
684.90	-55				659.90	-80			
Dense brown SAND and GRAVEL, saturated A-1-a		17 15 23	11.9		Very dense brownish-gray SAND and GRAVEL, saturated A-1-a		28 32 41		8.4
	-60				656.90	-85			
Dense brown SAND and GRAVEL, saturated A-1-a		13 18 18	12.1		End of Boring at 85.0' Diedrich D-120 Truck Rig (#282) CME Automatic Hammer 3.25" (83 mm) ID HSA				
	-65					-90			
		16 15 18	10.2						
	-70					-95			
Very dense brown and gray SAND and GRAVEL, saturated A-1		24 28 42	13.5						
	-75				666.90	-100			

DOT.G .1706

5 6216

SPT. (N) = Sum of last two blow values in sample. (Qu) B=Bulge S=Shear P=Penetration Test
Stations, Depths, Offset, and Elevations are in Feet

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ILLINOIS DEPARTMENT OF TRANSPORTATION
Testing Service Corporation
STRUCTURE BORING LOG

Date Started 5/9/05

Date Completed 5/9/05

ROUTE _____ DESCRIPTION Red Gate Road over Fox River

SECT. _____ STRUCT. NO. _____ DRILLED BY TSC L-62,164

COUNTY Kane LOCATION Bridge Over Bike Path S. 15 - CNTR, TWP. 40 N, RNG. 8 E

Boring No. <u>B-6</u>	DEPTH	BLOW	Qu	W	Surface Water Elev. _____	DEPTH	BLOW	Qu	W
Station <u>125+18</u>					Groundwater Elev.:				
Offset <u>0.00ft RT</u>					when drilling <u>685.1</u>				
Surface Elev. <u>705.10</u> ft					at Completion <u>675.1</u>				
					after _____ Hrs. _____				

Description	DEPTH	BLOW	Qu	W	Soil Description	DEPTH	BLOW	Qu	W
FILL - Brown SANDY LOAM, trace root seams, moist A-2-4		2 2 3	B 0.9 15%	12.5			10 13 14		13.5
702.10					Medium dense to dense brown SAND and GRAVEL, saturated A-1-a				
Very stiff brown CLAY, occasional sand seams, moist A-6		3 5 6	B 2.5 15%	25.3			14 18 20		13.6
699.60	-5					-30			
Medium dense brown clayey SAND, moist A-1-b		6 8 8	B 1.2 15%	15.4 10.4					
698.60						673.10			
Medium dense to loose brown fine to medium SAND, trace to little gravel, damp A-1-b		3 4 3		8.4			9 13 15		11.0
692.10	-10				Medium dense brownish-gray SAND and GRAVEL, saturated A-1-a				
		5 4 5		5.8					
						668.10			
Medium dense brown fine to medium SAND, trace to little gravel, damp to moist A-1-b		5 6 6		5.4			11 16 20		7.5
684.60	-15				Dense gray and brown SAND and GRAVEL, saturated A-1				
		5 6 8		8.5					
						663.10			
Medium dense brown and gray GRAVEL, little sand, saturated A-1-a		5 9 10		6.1			16 19 22		6.1
680.10	-20				Dense gray SAND and GRAVEL, saturated A-1-a				
		9 8 8		4.7					
		6 8 8		10.8			17 18 22		9.2
						655.10			
	-25					-50			

DOT 6216 4/1/06

SPT. (N) = Sum of last two blow values in sample. (Qu) B=Bulge S=Shear P=Penetration Test
Stations, Depths, Offset, and Elevations are in Feet

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ILLINOIS DEPARTMENT OF TRANSPORTATION
Testing Service Corporation
STRUCTURE BORING LOG

Date Started 5/25/05

Date Completed 5/25/05

ROUTE _____ DESCRIPTION Red Gate Road over Fox River

SECT. _____ STRUCT. NO. _____ DRILLED BY TSC L-62,164

COUNTY Kane LOCATION West Side River Channel S. 15 - CNTR, TWP. 40 N, RNG. 8 E

Boring No. _____ B-9	D E P T H	B L O W S	Qu tsf	W %	Surface Water Elev. <u>685.5</u>	D E P T H	B L O W S	Qu tsf	W %
Station <u>111+84</u>					Groundwater Elev.: _____				
Offset <u>4.10ft LT</u>					when drilling _____				
Surface Elev. <u>686.00</u> ft					at Completion _____				
					after _____ Hrs. _____				
Barge Deck	685.50								
Water (Fox River)							25 22 20		5.6
	681.00	-5					17 17 20		5.5
Dark gray clayey SAND, occasional Cobbles, wet	680.00		2 3	57.0	655.50	-30	25 24 24		6.5
			10 17 19	15.4					
Dense brownish-gray SAND and GRAVEL, occasional Cobbles, saturated A-1-a		-10				-35	25 26 27		13.4
			14 22 27	10.6	649.00				
Skid Rig on Barge SPT Hammer = Rope and Cathead Rotary Wash Drill			16 22 27	12.9		-40	19 21 20		8.3
	670.50								
			14 11 12	12.0	644.00				
Medium dense brownish-gray SAND and GRAVEL, saturated A-1-a			8 14 11	13.0		-45	18 22 33		7.2
	665.50								
Very dense brownish-gray SAND, little gravel, saturated A-1-b			19 25 27	17.7					
	663.00								
Very dense gray SAND and GRAVEL, saturated A-1-a			16 28 29	7.2			60 30 32		8.7
	661.00	-25			636.00	-50			

DOT 6216-2-3

SPT. (N) = Sum of last two blow values in sample. (Qu) B=Bulge S=Shear P=Penetration Test
Stations, Depths, Offset, and Elevations are in Feet

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ILLINOIS DEPARTMENT OF TRANSPORTATION
Testing Service Corporation
STRUCTURE BORING LOG

ROUTE _____ DESCRIPTION Red Gate Road over Fox River Date Started _____
Date Completed _____

SECT. _____ STRUCT. NO. _____ DRILLED BY TSC L-62,164

COUNTY Kane LOCATION East Side River Channel S. 15 - CNTR, TWP. 40 N, RNG. 8 E

Boring No. _____ Station _____ Offset _____	D E P T H	B L O W S	Qu tsf	W %	Surface Water Elev. _____ Groundwater Elev.: _____ when drilling _____ at Completion _____ after _____ Hrs. _____	D E P T H	B L O W S	Qu tsf	W %
Surface Elev. <u>686.40</u> ft									
Barge Deck <u>685.90</u>									
Water (Fox River)									
							19		
							24		10.5
							34		
					<u>658.40</u>				
							24		
							42		9.8
							38		
					<u>655.90</u>				
Soft black and dark brown clayey SAND, wet <u>681.40</u>	-5	0	P						
		1	0.25	30.3					
Medium dense dark brown and gray silty SAND, trace gravel, saturated A-1-b <u>680.40</u>		5		23.5					
		6					18		
		8					24		6.8
							20		
					<u>653.40</u>				
Dense brownish-gray SILTY CLAY, moist A-6(17) <u>678.40</u>		12	B	23.7			16		
		14	3.0				22		9.1
		17	15%				25		
	-10								
		4	B	24.8					
		5	1.4						
		7	15%						
					<u>649.40</u>				
Stiff to soft brownish-gray CLAY, trace gravel, moist to very moist A-6 <u>675.90</u>		3	B	27.8			21		
		4	0.4				22		18.3
		16	15%				19		
	-15								
		7		7.6					
		10							
		14							
					<u>644.40</u>				
Medium dense to dense brown and gray SAND and GRAVEL, saturated A-1-a <u>670.90</u>		16		10.9			18		
		18					25		11.2
		15		15.5			29		
	-20								
Medium dense brown and gray SAND, little gravel, saturated A-1-b <u>665.90</u>		10		10.5					
		13							
		16							
					<u>663.40</u>				
Very dense brown SAND and GRAVEL, saturated A-1-a <u>661.40</u>		10		15.3			22		
		24					33		12.3
		40					40		
	-25				<u>636.40</u>				

SPT. (N) = Sum of last two blow values in sample. (Qu) B=Bulge S=Shear P=Penetration Test
Stations, Depths, Offset, and Elevations are in Feet

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ILLINOIS DEPARTMENT OF TRANSPORTATION
 Testing Service Corporation
 STRUCTURE BORING LOG

Date Started _____
 Date Completed _____

STRUCTURE NO. _____
 ROUTE _____
 SECTION _____
 COUNTY Kane

STRUCTURE NO. _____
 ROUTE _____
 SECTION _____
 COUNTY Kane

Boring No. B-10
 Station 114+89
 Offset 1.70ft RT
 Elevation 636.40 ft

Elevation 611.40 ft

DEPT H	B L O W S	Qu tsf	W %	DEPT H	B L O W S	Qu tsf	W %
	100/0"						
-55				-80			
	73 48 60		6.8				
-60				-85			
624.40							
	83 50/4"		9.2				
-65				-90			
619.40							
	68 50/3"		12.7				
-70				-95			
614.40							
	100/4"		12.5				
611.40				-100			
-75							

No Recovery

Very dense gray SAND and GRAVEL, occasional Cobbles, saturated A-1

Very dense gray SAND, some gravel, saturated A-1

Very dense gray SAND, trace to little gravel, saturated A-1-b

Very dense gray SAND and GRAVEL, occasional Cobbles, saturated A-1-a

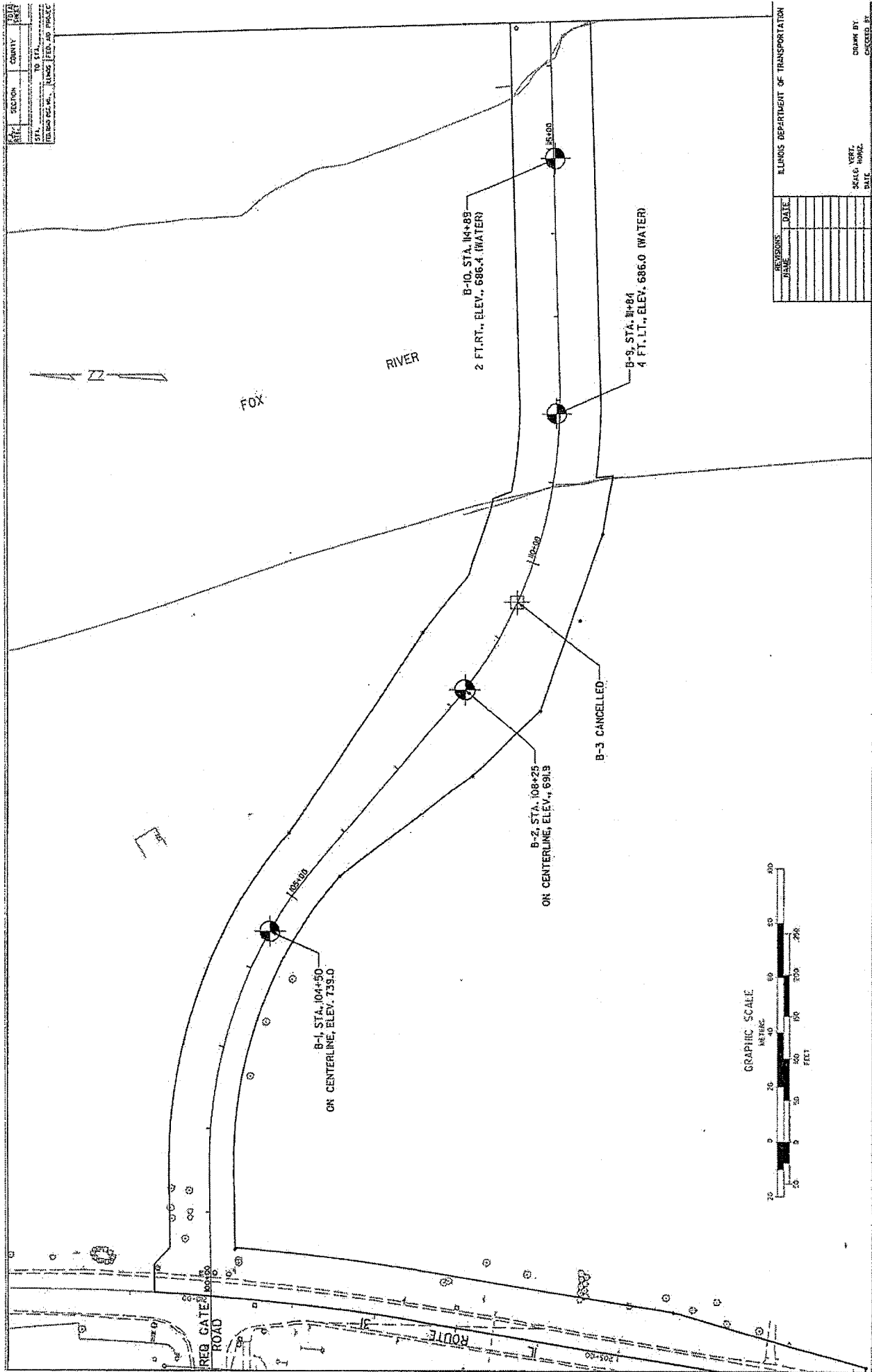
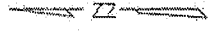
Skid Rig on Barge
 SPT Hammer = Rope and Cathead
 Rotary Wash Drill

End of Boring at 75.0'

DOT.G... 6216... 106

SPT. (N) = Sum of last two blow values in sample. (Qu) B=Bulge S=Shear P=Penetration Test
 Stations, Depths, Offset, and Elevations are in Feet

CITY	SECTION	COUNTY	SOIL



DESIGNER'S NAME	DATE

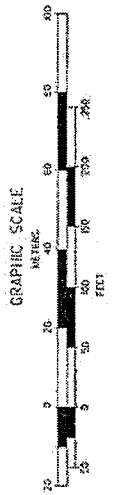
ILLINOIS DEPARTMENT OF TRANSPORTATION

SCALE: VERT. 1"=20' HORIZ. 1"=40'

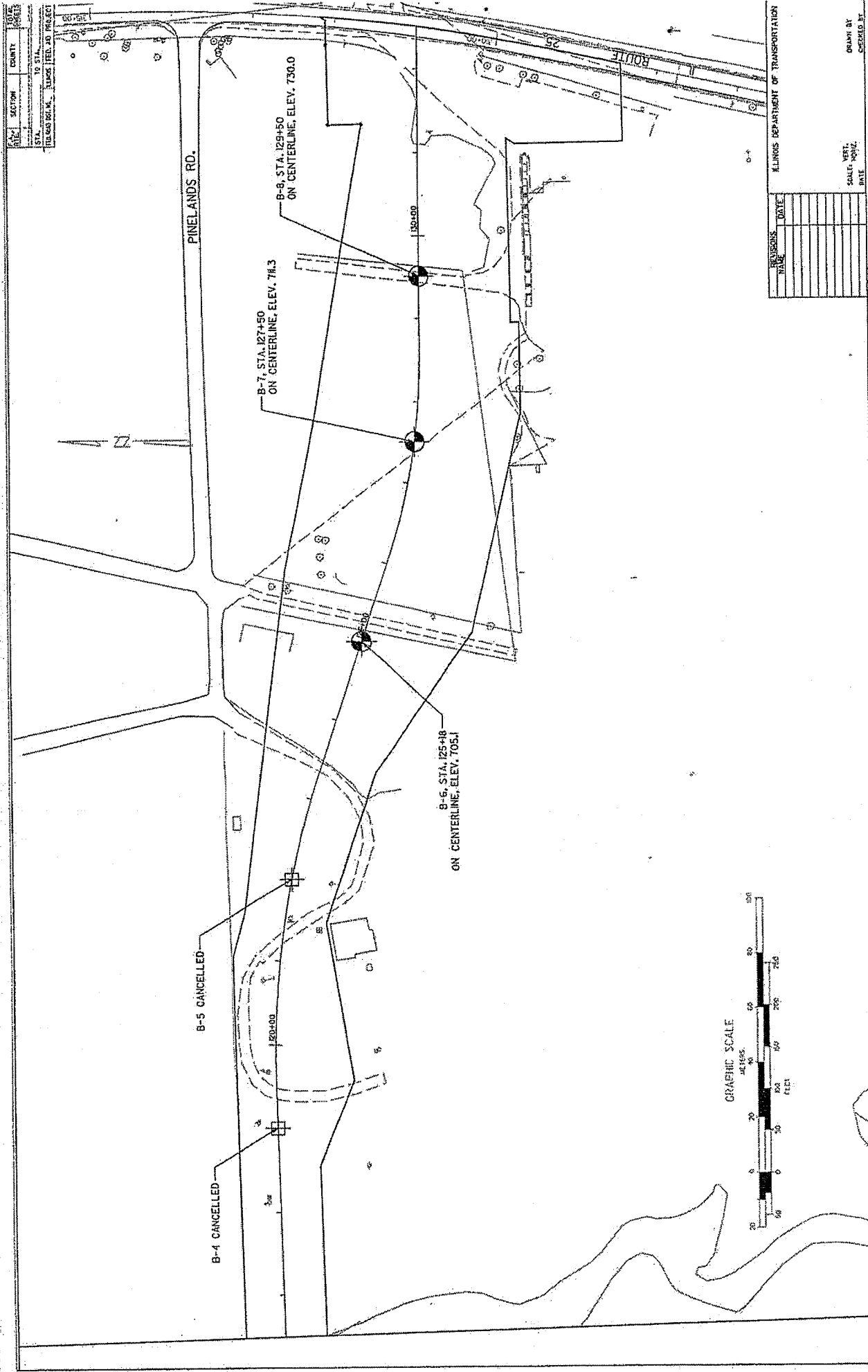
DRAWN BY: _____

CHECKED BY: _____

DATE: _____



DATE: _____ COUNTY: _____
 SHEET NO.: _____ TO STA.: _____
 STA. FROM: _____ TO: _____
 PROJECT: _____
 SCALE: _____
 DATE: _____



REVISIONS	
NO.	DATE

KLINCK DEPARTMENT OF TRANSPORTATION
 DRAWN BY: _____
 CHECKED BY: _____
 SCALE: _____
 DATE: _____

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STRUCTURAL GEOTECHNICAL REPORT

Red Gate Road Bridge Project

IL-25 Retaining Walls

IDOT Job: P-91-322-04

Section: 04-00092-00-BR

Kane County, Illinois

STRUCTURAL ENGINEER:

Mr. Abdou Hossam, P.E., S.E.

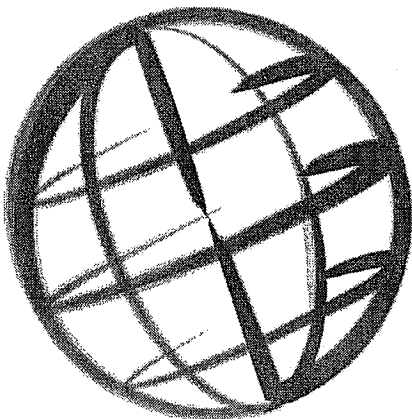
**Alfred Benesch & Company
205 North Michigan Ave.
Suite 2400
Chicago, Illinois 60601
(312) 565-0450**

Prepared by:

**Geo Services, Inc.
805 Amherst Court
Suite 204
Naperville, Illinois 60565
(630) 305-9186**

JOB NO. 10191

October 4, 2011





October 4, 2011

Alfred Benesch & Company
205 N. Michigan Avenue, Suite 2400
Chicago, Illinois 60601

Attention: Mr. Hossam Abdou, P.E., S.E.

Job No. 10191

Re: Structural Geotechnical Report
IL-25 Retaining Walls
Red Gate Road Bridge Project
Proposed SN TBD
Section Number: 04-00092-00-BR
IDOT Job Number: P-91-322-04
Kane County, Illinois

Dear Mr. Abdou:

The following report presents the geotechnical analysis and recommendations for the proposed retaining wall structures on IL Route 25 (IL-25). A total of eight (8) structural soil borings (RW-03, RW-04 and RW-09 to RW-12, including alternate "A" borings) were completed at the project site by Geo Services, Inc. (GSI). Copies of these boring logs are included in this report.

If there are any questions regarding the information submitted herein, please do not hesitate to contact us.

Very truly yours,

GEO SERVICES, Inc.

Alex Barlan, P.E.
Project Engineer

Andrew J. Ptak, P.E.
Office Manager

enc.

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SECTION 01: INTRODUCTION

This report presents the results of the geotechnical investigation for the proposed retaining wall structures on IL Route 25 (IL-25) for the Red Gate Road Bridge Project, IDOT Project Number: P-91-322-04. The results of the eight (8) structure borings (RW-03, RW-04 and RW-09 to RW-12, including alternate "A" borings RW-10A and RW-12A) completed by Geo Services, along with boring location diagram and profiles, are included with this report. RW-10A and RW-12A were performed near the locations of RW-10 and RW-12 at the top of the embankment to verify embankment soils.

Boring locations were selected by Geo Services, Inc. and were reviewed and approved by Alfred Benesch & Company and the Illinois Department of Transportation (IDOT). Borings locations and elevations were surveyed in the field by a surveyor company by Alfred Benesch & Company, and the as-drilled locations are illustrated on the boring location diagram in Appendix B. Elevations were determined from topographic information provided by Benesch and are shown on the boring logs.

This report includes recommendations pertaining to the design and construction of the new retaining walls, description of soil and groundwater conditions, general construction considerations for the site, location diagram, soil profiles and boring logs.

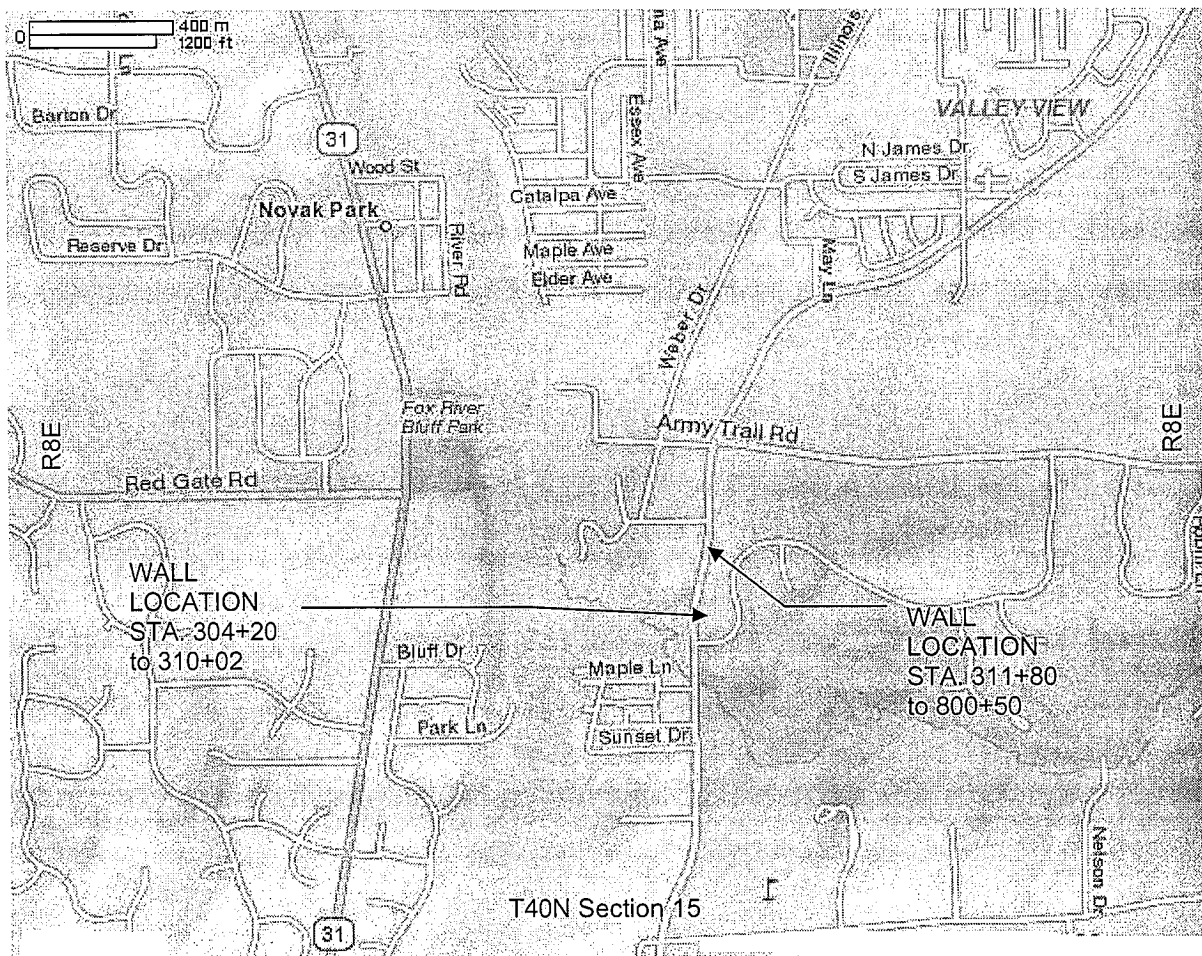
SECTION 02: PROJECT DESCRIPTION

This report concerns the retaining walls which extends from approximate station 305+20 to 310+02 (482 feet in length) and station 311+80 and 800+50 (wall turns into Pineland Road and ends at Pineland Road station, 265 feet in length). The roadway in this section of the project is to be widened on both sides and will remain at approximately existing roadway grade or higher. Retaining walls will be required along the east side of IL-25 to cut into embankment and along the west side of IL-25 to raise grade elevation just south of Pineland Road to reduce ROW acquisition. Bottom of wall elevations will vary, with the exposed wall heights approximately 5 to 6 feet for the east wall and 3 to 7 for the west. The proposed retaining walls will be designated at a later date.

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLANS FOR PROPOSED

Section No.: 04-00092-00-BR
Red Gate Road Bridge Project
Kane County, Illinois

T40N Section 15
3rd P.M.



SECTION 03: SUBSURFACE INVESTIGATION PROCEDURES

Borings were performed during the month of June, 2011, with a truck-mounted drilling rig equipped with a CME automatic hammer, and were advanced by means of hollow stem augers to a depth of 10 feet and rotary-drilling techniques to completion. Representative soil samples were obtained employing split spoon sampling procedures in accordance with AASHTO Method T-206. Samples obtained in the field were returned to our laboratory for further examination and testing.

Split spoon sampling involves driving a 2.0-inch outside diameter split-barrel sampler into the soil with a 140-pound weight falling freely through a distance of 30 inches. Blow counts are recorded at 6" intervals and the blow counts are shown on the boring logs. The number of blows required to advance the sampler the last 12 inches is termed the Standard Penetration Resistance (N). The N value is an indication of the relative density of the soil.

SECTION 04: LAB TESTING PROGRAM

The test procedures were performed in accordance with test procedures discussed in the IDOT Geotechnical Manual. All split-spoon samples obtained from the drilling operation were visually classified in the field. Cohesive samples were tested for unconfined compressive strength using an IDOT modified RIMAC test device and/or calibrated penetrometer in the field.

The soil testing program included performing water content, density and either unconfined compression and/or calibrated penetrometer tests on the cohesive samples recovered. These tests were performed upon representative portions of the samples obtained in the field. The results of the above testing, along with a visual classification of the material based upon both the Illinois textural classification and the AASHTO Soil Classification System, are indicated on the boring logs.

SECTION 05: SUBSURFACE CONDITIONS

Borings RW-03 and RW-04 were drilled for the west retaining wall. Existing pavement conditions consisted of 6 to 7 inches of asphalt pavement and 7 to 10 inches of concrete pavement. Underlying the pavement, subsurface soils consisted generally of very stiff clay loam soils. From an approximate elevation of 735 to 740, stratum of stiff clay soils were encountered in both borings. In RW-05 from an elevation of 748.5 to 746, medium dense silt was encountered (moisture content of 23%). The clay soils had moisture contents within the range of 9% to 24%, with an average of 17%.

Borings RW-09 through RW-12 pavement conditions consisted of 5 to 7 inches of asphalt and 7 to 8 inches of concrete. Underlying the pavement, sub surface soil consisted of generally stiff to very stiff clay loam soils. Beneath RW-10, approximately 1.5 feet of loose sand and gravel fill was encountered (moisture content of 5%). RW-12 encountered loose silt from an elevation of 749 to 746 (moisture content of 21%) and fine sand from 744 to 739 (moisture contents of 19% and 20%). Alternate "A" borings (RW-10A and RW-12A) were drilled to explore soil conditions at the top of the embankment and encountered clay loam soils with moisture contents around 17%. The clay loam soils of RW-09 through RW-12 along with the alternate "A" borings had moisture contents within the range of 12% to 21%, with an average of 14%.

SECTION 06: WATER TABLE CONDITIONS

The Fox River surface water level was situated at an approximate water level of 686 with a stream bed elevation range of 680 to 682. Borings RW-03, RW-04 and RW-09 to RW-12 were performed on land at higher elevations of 734 feet and higher. Due to the nature of rotary-wash drilling, it is not possible to attain water levels below 10 feet of depth or after drilling. When water was encountered during drilling, it was encountered at elevation 737 (RW-03) and 744 (RW-11). Fluctuations in the amount of water accumulated and in the hydrostatic water table can be anticipated depending on variations in precipitation and surface runoff.

SECTION 07: ANALYSIS

Seismic Conditions

According to the AASHTO LRFD Bridge Design Specification 2007 (with 2010 Interim), the project site has a horizontal Response Spectral Acceleration of 0.037 at a period of 1.0 second and 5% critical dampening (S_1) and 0.095 at a period of 0.2 seconds and 5% critical dampening (S_s), Site Class: D and is designated as an area with a Seismic Performance Zone = 1. This results in a Design Spectral Acceleration at 1.0 second = 0.089 (S_{D1}) and at 0.2 seconds = 0.152 (S_{Ds}) according to the ASSHTO LRFD Bridge Design Specification 2007 (with 2010 Interim). The project site is considered to be in a low seismic area and is considered a non-extreme event. Liquefiable layers and down drag are not expected to impact the design of the retaining walls.

Slope Stability

For the east wall (a cut wall) a worst case scenario of 6 feet exposed wall height and for the west wall (a fill wall) a worst case scenario of 7 feet was used for analysis. Slope stability has been analyzed using X-Stabl slope analysis program using both the Bishop and Janbu methods of analysis. A factor of safety greater than 2.0 was calculated. We recommend a factor of safety of 2.0 be used for design. No slope stability concerns were identified.

Settlement

For the east wall, it is a cut-wall; settlement is not a relevant in the area of the east wall since no new fill is required. For the west wall, a maximum of 7 feet of will be placed in the portion of the west wall. The worst case scenario of 7 feet of fill has been analyzed for settlement calculations in conjunction with RW-03. Settlement is calculated to be less than 0.4 inches for the proposed embankment. Settlement is not a concern for the areas of the retaining wall structures.

SECTION 08: EAST WALL RECOMMENDATIONS

Recommended Wall Types

The maximum wall height is to be approximately 6 feet (from top of wall embankment to top of pavement). According to the boring logs and that the wall is a cut wall, recommended wall types include a soldier pile with fascia wall or a driven sheet pile wall.

For shallow foundations, bearing pressure has been analyzed with foundations inverts in the elevation range of 735 to 755 feet, according to drawings from Alfred Benesch & Company. A bearing pressure of 1,900 psf has been calculated for soil support for an MSE wall and a cantilever T-type wall at this elevation, and existing soil conditions are considered to meet the requirements for bearing (with a 6 foot wall, estimate 1,600 psf required), overturning and settlement for the wall. However, these wall types will have deeper cuts and larger excavations into the existing embankment than the soldier pile with fascia wall and the sheet pile wall, and are not recommended.

A soil nail wall can also be considered, but the soil nails will need permanent easements for the soil nails and a soil nail wall is not recommended.

Economic, construction and scheduling factors should be evaluated for the decision of retaining wall design. The following provides a discussion of soil conditions as they relate to the retaining wall construction.

Soldier Pile with Fascia Wall and Sheet Pile Wall Recommendations

With the use of a soldier pile with fascia wall or sheet pile wall, maximum retained embankment is approximately 6 feet (from top of wall to top of pavement). Soil properties in the following **Lateral Resistance Recommendations Section** may be used for design of the wall. Support for the wall will be from the stiff to hard clay soils. From the borings, it is not expected to encounter obstructions; however, using a soldier pile wall will reduce the potential for obstructions.

If a soldier pile and fascia wall is selected for design, a drainage system should be provided behind the fascia wall panels. For both the soldier pile with fascia wall and driven sheet pile wall, a drainage system should be provided in the front to divert water from the wall base at grade. The drainage system should be daylighted to a suitable outlet or outlets.

Lateral Resistance Recommendations

On the following table are lateral soil parameters to be used for design.

**TABLE 1 - SOIL PARAMETERS FOR LATERAL RESISTANCE
 EAST WALL (RW-09 to RW-12)**

Material (Elevation ft.)	Unit Weight (pcf)	Drained Friction Angle (°)	Undrained Cohesion (psf)	Lateral Modulus of Subgrade Reaction (pci)	Strain
Clay Loam (764 to 752)	125	28	1,000	200	0.010
Stiff to Very Stiff Clay Loam 752 to 722	130	28	1,500	500	0.005

Notes:

1. Values recommended for use in design from L-pile Software Manual

At the walls, it is recommended that a lateral active earth pressure of 40 psf per foot of depth be used above the water table assuming a free-draining granular backfill is utilized. For cohesive soils, a lateral active earth pressure of 55 psf per foot should be used. For non-yielding walls with granular backfill, a lateral at-rest pressure of 50 psf per foot should be used, assuming proper drainage. For cohesive soils, a lateral at-rest pressure of 65 psf per foot should be used. Allowances should be made for any surcharge loads adjacent to the retaining structure. According to the NAVFAQ Design Manual 7.02, a value of 0.34 may be used for the coefficient of friction between the concrete base and drained cohesive soils (this assumes a concrete base on the stiff cohesive soils). For concrete on the sand and gravel soils, we recommend using a friction angle of 29 degree leading to a coefficient of friction of 0.55.

SECTION 09: WEST WALL RECOMMENDATIONS

Shallow Foundation Recommendations

The west wall is considered to be a fill wall from station 311+80 to 800+50 (wall turns into Pineland Road and ends at Pineland Road station, 265 feet in length). . Based on the results of the borings performed for this portion of the project (RW-03 and RW-04), the wall inverts based at an elevation from 740 to 746 will be situated on very stiff clay soils and may be designed using a gross allowable bearing capacity of 4,000 pound per square foot. For other portions of the wall (from station 313+28 to 313+69); wall inverts will be based at an elevation of 748 and will be situated on either very stiff clays or medium dense silt. We recommend using a gross allowable bearing capacity of 4,000 pound per square foot for these portions of the retaining wall.

With a maximum wall height of 11 feet (exposed 7 feet in addition to non-exposed wall height of 4 feet) an estimate bearing capacity of 2,000 will be needed for support of the wall. Based on the gross allowable bearing capacity of 4,000 psf, either spread footing or an MSE Walls may be used for foundation design of the retaining wall structure.

Lateral Resistance Recommendations

On the following table are lateral soil parameters to be used for design.

**TABLE 2 - SOIL PARAMETERS FOR LATERAL RESISTANCE
 WEST WALL (RW-03 and RW-04)**

Material (Elevation ft.)	Unit Weight (pcf)	Drained Friction Angle (°)	Undrained Cohesion (psf)	Lateral Modulus of Subgrade Reaction (pci)	Strain
Clay FILL (Proposed new grade to 750)	125	28	1,000	200	0.010
Loose Granular FILL (Proposed new grade to 750)	125	28	-	25	0.006
Very Stiff Clay Loam 754 to 748	130	28	2000	600	0.005
Medium Dense Silt (748 to 746)	130	32	-	90	0.005
Very Stiff Clay Loam 754 to 748	130	28	2000	600	0.005

Notes:

1. Values recommended for use in design from L-pile Software Manual

At the walls, it is recommended that a lateral active earth pressure of 40 psf per foot of depth be used above the water table assuming a free-draining granular backfill is utilized. For cohesive soils, a lateral active earth pressure of 55 psf per foot should be used. For non-yielding walls with granular backfill, a lateral at-rest pressure of 50 psf per foot should be used, assuming proper drainage. For cohesive soils, a lateral at-rest pressure of 65 psf per foot should be used. Allowances should be made for any surcharge loads adjacent to the retaining structure. According to the NAVFAQ Design Manual 7.02, a value of 0.34 may be used for the coefficient of friction between the concrete base and drained cohesive soils (this assumes a concrete base on the stiff cohesive soils). For concrete on the sand and gravel soils, we recommend using a friction angle of 29 degree leading to a coefficient of friction of 0.55.

SECTION 10: GENERAL CONSTRUCTION CONSIDERATIONS

For construction of the retaining wall, plans show that there will be sufficient space to allow for sloping excavation embankment. Excavation safety is the responsibility of the contractor; however, we recommend that excavation sides be sloped at 1.5H:1V or flatter above the water table for this purpose. If the need for temporary earth retention

arises, cantilevered sheet piling can be used and support will be provided by the primarily clayey soils found throughout borings obtained. If temporary soil retention is needed for the wall, support will be provided from natural clay soil.

During excavation for the proposed improvements, movement of adjacent soils into the excavation should be prevented. All excavations should be performed in accordance with the latest Occupational Safety and Health Administration (OSHA) requirements. Allowances should be made for any surcharge loads adjacent to the retaining structures.

Water was encountered in boring RW-11 at an elevation of 744 to 745, near the proposed northern parts of the east retaining wall. The contractor should be notified that the west retaining wall has the potential to have water flowing out of the sides of the embankment during excavation for the proposed west wall. The contractor should be prepared with sump pump and pit procedures to keep the site in the dry during construction

SECTION 11: GENERAL QUALIFICATIONS

The analysis and recommendations presented in this report are based upon the data obtained from the soil borings performed at the indicated locations and from any other information discussed in this report. This report does not reflect any variations that may occur between borings or across the site. In addition, the soil samples cannot be relied on to accurately reflect the strata variations that usually exist between sampling locations. The nature and extent of such variations may not become evident until construction. If variations appear evident, it will be necessary to reevaluate the recommendations of the report. In addition, it is recommended that Geo Services Inc. be retained to perform construction observation and thereby provide a complete professional geotechnical engineering service through the observational method.

This report has been prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted geotechnical engineering practices. No other warranties, either expressed or implied, are intended or made. In the event that any changes in the nature, design or location of the project as outlined in this report are planned, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and the conclusions of this report modified or verified in writing by the geotechnical engineer. Also note that Geo Services Inc. is not responsible for any claims, damages, or liability associated with any other party's interpretation of this report's subsurface data or reuse of the report's subsurface data or engineering analyses without the express written authorization of Geo Services Inc.

APPENDIX A
GENERAL NOTES

GENERAL NOTES

CLASSIFICATION

American Association of State Highway & Transportation Officials (AASHTO) System used for soil classification.

Cohesionless Soils

<u>Relative Density</u>	<u>No. of Blows per foot N</u>
Very Loose	0 to 4
Loose	4 to 10
Medium Dense	10 to 30
Dense	30 to 50
Very Dense	Over 50

TERMINOLOGY

Streaks are considered to be paper thick.
Lenses are considered to be less than 2 inches thick. **Layers** are considered to be less than 6 inches thick. **Stratum** are considered to be greater than 6 inches thick.

Cohesive Soils

<u>Consistency</u>	<u>Unconfined Compressive Strength - qu (tsf)</u>
Very Soft	Less than 0.25
Soft	0.25 - 0.5
Medium Stiff	0.5 - 1.0
Stiff	1.0 - 2.0
Very Stiff	2.0 - 4.0
Hard	Over 4.0

DRILLING AND SAMPLING SYMBOLS

SS: Split Spoon 1-3/8" I.D., 2" O.D.	HS: Housel Sampler
ST: Shelby Tube 2" O.D., except where noted	WS: Wash Sample
AS: Auger Sample	FT: Fish Tail
DB: Diamond Bit - NX: BX: AX	RB: Rock Bit
CB: Carboly Bit - NX: BX: AX	WO: Wash Out
OS: Osterberg Sampler	

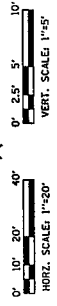
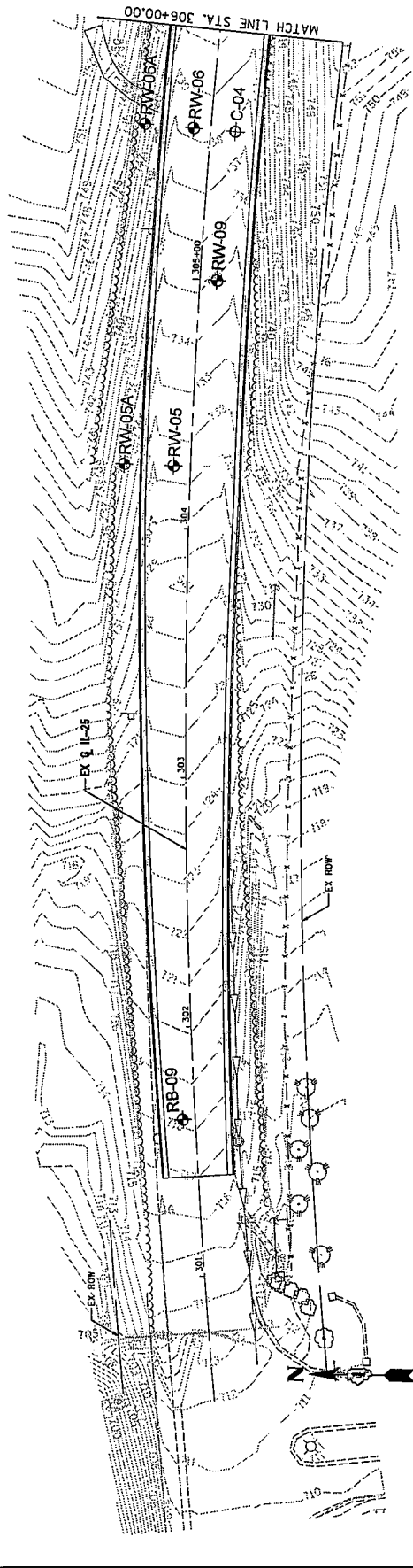
Standard "N" Penetration: Blows per foot of a 140 lb. hammer falling 30" on a 2" O.D. Split Spoon

WATER LEVEL MEASUREMENT SYMBOLS

WL: Water	WD: While Drilling
WCI: Wet Cave In	BCR: Before Casing Removal
DCI: Dry Cave In	ACR: After Casing Removal
WS: While sampling	AB: After Boring

Water levels indicated on the boring logs are the levels measured in the boring at the times indicated. In pervious soils, the indicated elevations are considered reliable ground water levels. In impervious soils, the accurate determination of ground water elevations is not possible in even several days observation, and additional evidence on ground water elevations must be sought.

APPENDIX B
PLAN AND PROFILES



STATION	PROF. DATA	VERT. DATA	PLAN DATA
745	PAVEMENT 11.00-12.00	2.58-12	PAVEMENT 11.00-12.00
740	PAVEMENT 11.00-12.00	2.58-12	PAVEMENT 11.00-12.00
735	PAVEMENT 11.00-12.00	2.58-12	PAVEMENT 11.00-12.00
730	PAVEMENT 11.00-12.00	2.58-12	PAVEMENT 11.00-12.00
725	PAVEMENT 11.00-12.00	2.58-12	PAVEMENT 11.00-12.00
720	PAVEMENT 11.00-12.00	2.58-12	PAVEMENT 11.00-12.00
715	PAVEMENT 11.00-12.00	2.58-12	PAVEMENT 11.00-12.00
710	PAVEMENT 11.00-12.00	2.58-12	PAVEMENT 11.00-12.00
705	PAVEMENT 11.00-12.00	2.58-12	PAVEMENT 11.00-12.00

FILE NAME: 300+450

USER NAME: 10/20/11

DATE: 9/27/2011

DESIGNED BY: BRC

CHECKED BY: BRC

DATE: 9/27/2011

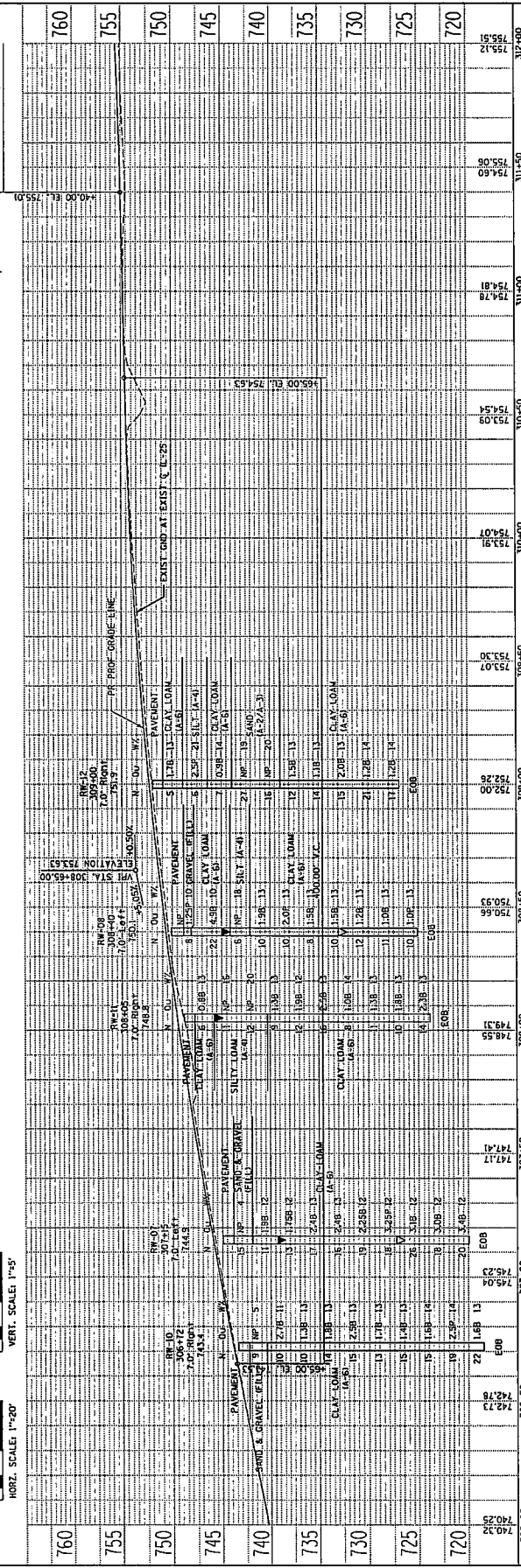
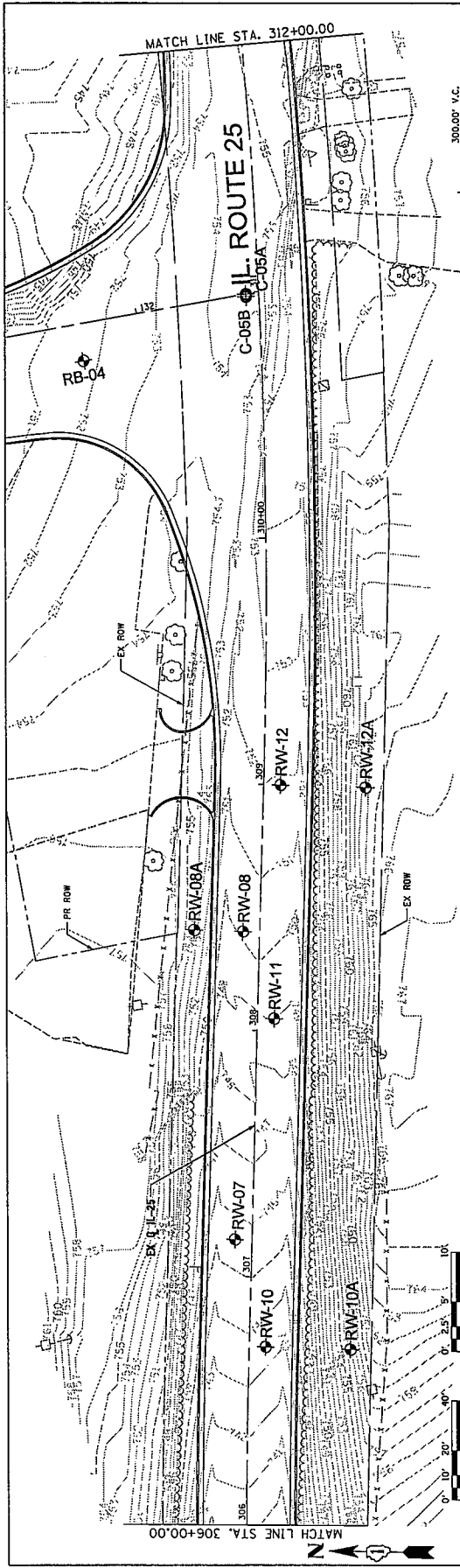
STATE OF ILLINOIS

DEPARTMENT OF TRANSPORTATION

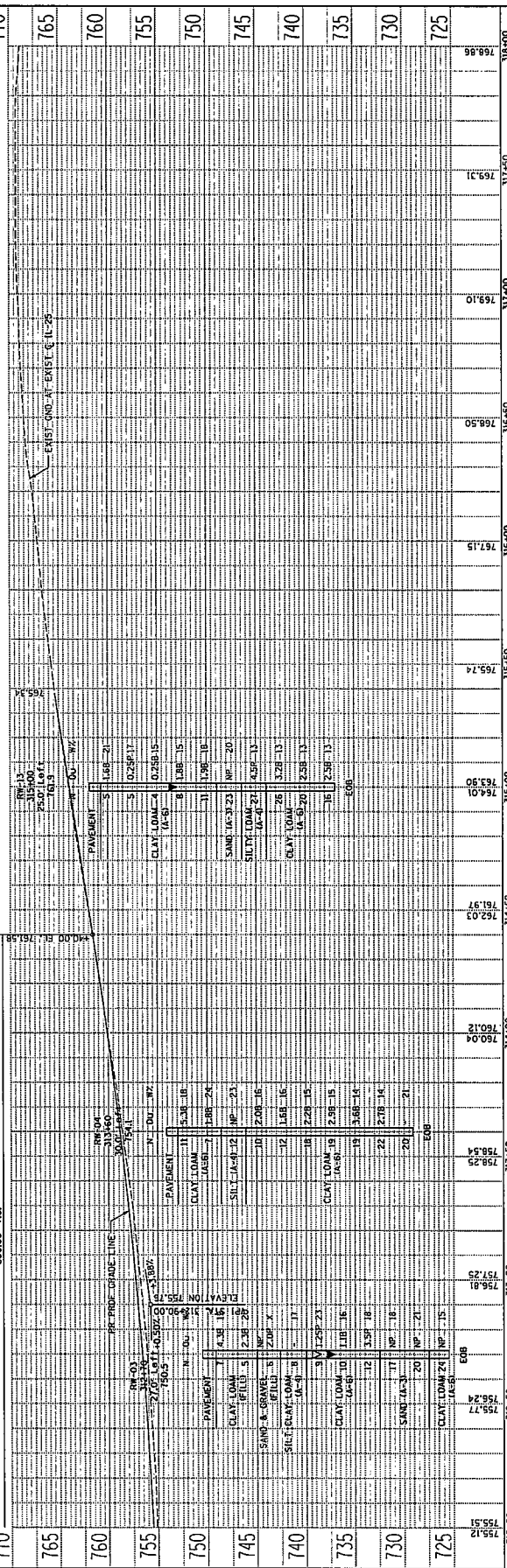
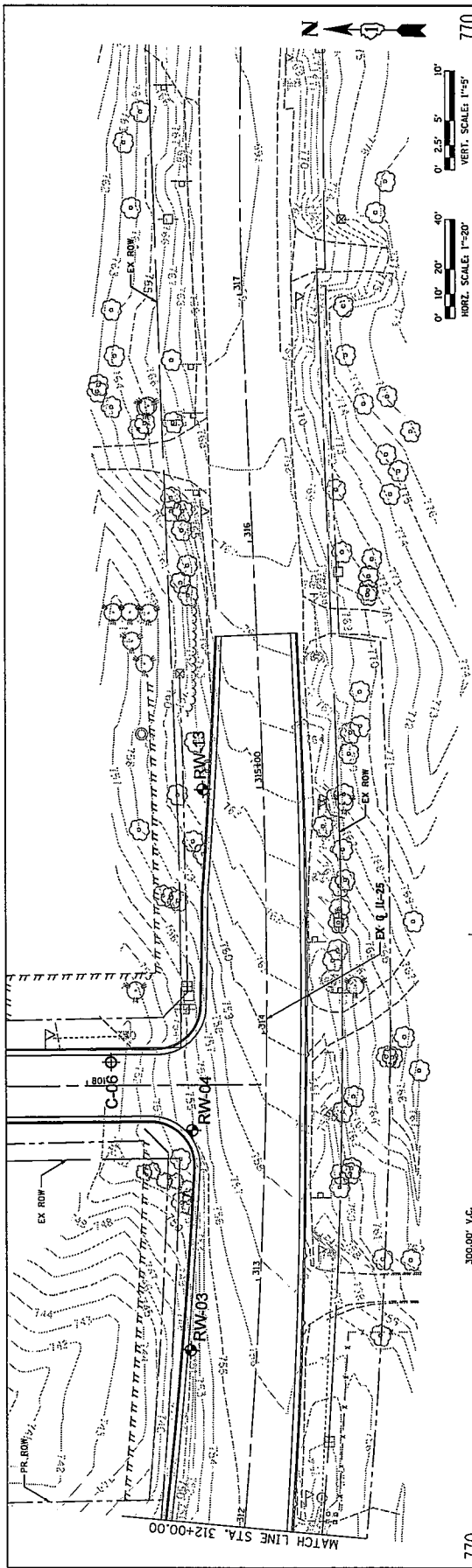
RED GATE ROAD OVER THE FOX RIVER

SOIL BORING PLAN & PROFILE

SCALE: H 1"=20', V 1"=5' SHEET NO. 4 OF 9 SHEETS STA. 300+00 TO STA. 304+00



FILE NAME	DESIGNED BY	REVISION	DATE	STATE OF ILLINOIS	DEPARTMENT OF TRANSPORTATION	SECTION	COUNTY	PROJECT NO.	SHEET NO.
RED GATE ROAD OVER THE FOX RIVER SOIL BORING PLAN & PROFILE				STATE OF ILLINOIS	DEPARTMENT OF TRANSPORTATION	311-100	COOK	04-00092-00-R	311-100
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FILE NAME	DESIGNED BY	REVISION	DATE
FILE#	DRW#	REVISED	
USER NAME	USER#	REVISED	
PROJECT	DATE	REVISED	

STA.	312+00	313+00	314+00	315+00	316+00	317+00	317+50	318+00
ELEVATION	755.12	756.80	757.25	757.50	757.90	758.00	759.31	768.86

NO.	DATE	DESCRIPTION
1	07/20/01	ISSUED FOR PERMITS
2	07/20/01	ISSUED FOR PERMITS
3	07/20/01	ISSUED FOR PERMITS
4	07/20/01	ISSUED FOR PERMITS
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97	07/20/01	ISSUED FOR PERMITS
98	07/20/01	ISSUED FOR PERMITS
99	07/20/01	ISSUED FOR PERMITS
100	07/20/01	ISSUED FOR PERMITS

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

RED GATE ROAD OVER THE FOX RIVER
 SOIL BORING PLAN & PROFILE

SCALE: H 1"=30', V 1"=5'

SHEET NO. 5 OF 8 SHEETS | STA. 312+00 TO STA. 318+00

DATE: 07/20/01

APPENDIX C
SOIL BORING LOGS



SOIL BORING LOG

ROUTE IL. Rte. 25 & IL. Rte. 31 DESCRIPTION Red Gate Road Over The Fox River

SECTION 04-00092-00-BR LOCATION SEC. 15, TWP. 40 N., RNG. 8 E., 3rd P.M., St. Charles Township

COUNTY Kane DRILLING METHOD Hollow Stem Auger HAMMER TYPE CME Automatic

STRUCT. NO. ---
Station ---

BORING NO. **RW-03**
Station 312+70 IL. Route 25
Offset 27.0' Left
Ground Surface Elev. 750.5

D E P T H (ft)	B L O W S (/6")	U C S Qu (tsf)	M O I S T (%)	Surface Water Elev.	D E P T H (ft)	B L O W S (/6")	U C S Qu (tsf)	M O I S T (%)
				<u>n/a</u>				
				Stream Bed Elev. <u>n/a</u>				
				Groundwater Elevation:				
				First Encounter <u>737.0</u> ▼				
				Upon Completion <u>738.5</u> ▼				
				After _____ Hrs. _____ ▼				

6.0" ASPHALT, 10.0" CONCRETE	749.1							
		2		107	SAND—brown—medium dense (A-3)		5	
		3					9	
		4	4.3B	19			11	NP 21
						727.5		
CLAY LOAM—brown— very stiff to hard (A-6) Possible Fill		2		106	CLAY LOAM—brown—very stiff (A-6)		10	
		2					12	
		-5	3	2.3B	20	725.5	-25	12 3.25P 15
	745.0							
Sand with Gravel—brown— loose (A-1-b) Possible Fill	744.0		3	NP				
		3						
		3	2.0P	9				
SILTY CLAY LOAM—brown & gray— loose (A-4)		3						
		4						
		-10	4	-	17		-30	
	740.0							
		4						
		4						
		5	1.25P	23				
CLAY LOAM—brown— stiff to very stiff (A-6)		2		114				
		4						
		-15	6	1.1B	16		-35	
		3						
Sand seams from -16.0' to -17.5'.		5						
		7	3.5P	18				
	732.5							
SAND—brown—medium dense (A-3)		4						
		8						
		-20	9	NP	18		-40	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B—Bulge, S—Shear, P—Penetrometer) ST—Shelby Tube Sample VS—Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR—No Recovery PS—Pushed Spoon

295



SOIL BORING LOG

PAGE 1 of 1

DATE 6/6/2011

LOGGED BY MD

GSJ JOB No. 10191

ROUTE IL. Rte. 25 & IL. Rte. 31 DESCRIPTION Red Gate Road Over The Fox River

SECTION 04-00092-00-BR LOCATION SEC. 15, TWP. 40 N., RNG. 8 E., 3rd P.M., St. Charles Township

COUNTY Kane DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE CME Automatic

STRUCT. NO. ---
Station ---

BORING NO. **RW-04**
Station 313+60 Il. Route 25
Offset 30.0' Left
Ground Surface Elev. 754.1

DEPTH (ft)	BLOW S	UCS Qu	MOIST T	Surface Water Elev. <u>n/a</u>				DEPTH (ft)	BLOW S	UCS Qu	MOIST T
				Stream Bed Elev. <u>n/a</u>							
				Groundwater Elevation:							
				First Encounter <u>Dry to 5.0'▼</u>							
				Upon Completion <u>n/a ▼</u>							
				After _____ Hrs. <u>▼</u>							
(ft)	(/6")	(tsf)	(%)	(ft)	(/6")	(tsf)	(%)	(ft)	(/6")	(tsf)	(%)
7.0" ASPHALT, 7.0" CONCRETE											
752.9											
	3		106					6			123
	5							9			
	6	5.3B	18	CLAY LOAM—brown & gray— stiff to very stiff (A-6)				13	2.7B	14	
	2		95					6			
	3							9			
-5	4	1.8B	24				729.1	-25	11	-	21
748.6				End Of Boring @ -25.0' Hollow Stem Augers To -5.0' Rotary Drilling To Completion CME Automatic Hammer 5.0' Of 4.0"Ø Casing Used							
	3										
	6										
	6	NP	23								
746.1											
	3		119								
	5										
-10	5	2.0B	16					-30			
	3		118								
	5										
	7	1.6B	16								
	5		120								
	8										
-15	10	2.2B	15					-35			
	5		121								
	8										
	11	2.9B	15								
	6		121								
	8										
-20	11	3.6B	14					-40			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample VS-Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR-No Recovery PS-Pushed Spoon



SOIL BORING LOG

PAGE 1 of 1
 DATE XX
 LOGGED BY MR
 GSI JOB No. 10191

ROUTE IL. Rte. 25 & IL. Rte. 31 DESCRIPTION Red Gate Road Over The Fox River
 SECTION 04-00092-00-BR LOCATION SEC. 15, TWP. 40 N., RNG. 8 E., 3rd P.M., St. Charles Township
 COUNTY Kane DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE CME Automatic

STRUCT. NO. <u>---</u> Station <u>---</u>	D E P T H (ft)	B L O W S (/6")	U C S Qu (tsf)	M O I S T (%)	Surface Water Elev. <u>n/a</u> Stream Bed Elev. <u>n/a</u> Groundwater Elevation: First Encounter <u>Dry to 5.0'▼</u> Upon Completion <u>n/a ▼</u> After _____ Hrs. <u>▼</u>	D E P T H (ft)	B L O W S (/6")	U C S Qu (tsf)	M O I S T (%)
6.0" ASPHALT, 7.0" CONCRETE					CLAY LOAM—brown— stiff to very stiff (A-6)				
	733.5								
		2		124			3		
		2					4		
		4	2.25B	12			5	0.75P	13
					CLAY LOAM—brown— medium stiff (A-6)				
		3		119			3		120
		5					5		
		8	2.3B	13		709.6	25	0.8B	12
					End Of Boring @ -25.0' Hollow Stem Augers To -5.0' Rotary Drilling To Completion CME Automatic Hammer 5.0' Of 4.0"Ø Casing Used				
CLAY LOAM—brown— stiff to very stiff (A-6)		3		121					
		5							
		6	1.6B	14					
		3		119					
		6							
		8	1.1B	14					
		3		117					
		6							
		9	1.1B	13					
		3		120					
		5							
		5	1.3B	14					
		3		121					
		5							
		7	1.1B	13					
		4		123					
		5							
		6	1.4B	13					

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample VS-Vane Shear Test
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
 NR-No Recovery PS-Pushed Spoon



SOIL BORING LOG

PAGE 1 of 1

DATE 6/7/2011

LOGGED BY MD

GSJ JOB No. 10191

ROUTE IL. Rte. 25 & IL. Rte. 31 DESCRIPTION Red Gate Road Over The Fox River

SECTION 04-00092-00-BR LOCATION SEC. 15, TWP. 40 N., RNG. 8 E., 3rd P.M., St. Charles Township

COUNTY Kane DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE CME Automatic

STRUCT. NO. ---
Station ---

BORING NO. **RW-10**
Station 306+72 Il. Route 25
Offset 7.0' Right
Ground Surface Elev. 743.4

D E P T H (ft)	B L O W S (/6")	U C S Qu (tsf)	M O I S T (%)	Surface Water Elev. <u>n/a</u>	Stream Bed Elev. <u>n/a</u>	D E P T H (ft)	B L O W S (/6")	U C S Qu (tsf)	M O I S T (%)
				Groundwater Elevation:					
				First Encounter <u>Dry to 5.0'▼</u>					
				Upon Completion <u>n/a ▼</u>					
				After _____ Hrs. <u>▼</u>					

7.0" ASPHALT, 7.0" CONCRETE									
742.2									
SAND & GRAVEL—brown & gray— loose (A-1) Fill	4			CLAY LOAM—gray—stiff (A-6)		4			
740.4	5	NP	5		8	11	2.5P	14	
CLAY LOAM—brown— stiff to very stiff (A-6)	2		<i>126</i>		6			<i>124</i>	
	4				9				
	-5	6	2.7B	11	718.4 -25	13	1.6B	13	
	3		<i>121</i>	End Of Boring @ -25.0' Hollow Stem Augers To -5.0' Rotary Drilling To Completion CME Automatic Hammer 5.0' Of 4.0"φ Casing Used					
5									
5	1.3B	13							
734.9	4		<i>126</i>						
CLAY LOAM—gray—stiff (A-6)	6								
	-10	8	1.8B	13	-30				
	3		<i>125</i>						
	6								
	9	2.5B	13						
	3		<i>124</i>						
	5								
	-15	8	1.7B	13	-35				
	3		<i>125</i>						
	6								
9	1.4B	13							
4		<i>119</i>							
6									
-20	9	1.6B	14	-40					

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B—Bulge, S—Shear, P—Penetrometer) ST—Shelby Tube Sample VS—Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR—No Recovery PS—Pushed Spoon



SOIL BORING LOG

ROUTE IL. Rte. 25 & IL. Rte. 31 DESCRIPTION Red Gate Road Over The Fox River
 SECTION 04-00092-00-BR LOCATION SEC. 15, TWP. 40 N., RNG. 8 E., 3rd P.M., St. Charles Township
 COUNTY Kane DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE CME Automatic

STRUCT. NO. <u>---</u> Station <u>---</u>	DEPTH H (ft)	BLOW S (/6")	UCS Qu (tsf)	MOIST T (%)	Surface Water Elev. <u>n/a</u>	DEPTH H (ft)	BLOW S (/6")	UCS Qu (tsf)	MOIST T (%)
					Stream Bed Elev. <u>n/a</u>				
BORING NO. <u>RW-11</u> Station <u>308+05 Il. Route 25</u> Offset <u>7.0' Right</u> Ground Surface Elev. <u>748.8</u>					First Encounter <u>744.8</u> ▼				
					Upon Completion <u>n/a</u> ▼				
					After _____ Hrs. _____ ▼				
5.0" ASPHALT, 8.0" CONCRETE	747.7								
		3		125			4		125
		3					5		
CLAY LOAM—brown—medium stiff (A-6)		3	0.8B	13	CLAY LOAM—gray— stiff to very stiff (A-6)		5	1.8B	13
	▼744.8	3					4		124
		4					6		
		5					7		
SILTY LOAM—brown & gray— medium dense (A-4)		7	NP	16	End Of Boring @ -25.0' Hollow Stem Augers To -5.0' Rotary Drilling To Completion CME Automatic Hammer 5.0' Of 4.0" Ø Casing Used	723.8	-25	8	2.3B 13
		4		125					
		4							
		5	1.3B	13			-30		
		3		127					
		5							
CLAY LOAM—gray— stiff to very stiff (A-6)		7	1.9B	12					
		6		126					
		7							
		9	2.5B	13			-35		
		3		123					
		3							
		5	1.0B	14					
		4		125					
		5							
		6	1.3B	13			-40		

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B—Bulge, S—Shear, P—Penetrometer) ST—Shelby Tube Sample VS—Vane Shear Test
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
 NR—No Recovery PS—Pushed Spoon



SOIL BORING LOG

ROUTE IL. Rte. 25 & IL. Rte. 31 DESCRIPTION Red Gate Road Over The Fox River
 SECTION 04-00092-00-BR LOCATION SEC. 15, TWP. 40 N., RNG. 8 E., 3rd P.M., St. Charles Township
 COUNTY Kane DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE CME Automatic

STRUCT. NO. ---
 Station ---
 BORING NO. RW-12
 Station 309+00 IL. Route 25
 Offset 7.0' Right
 Ground Surface Elev. 751.9

DEPTH H (ft)	BLOW W S (/6")	UCS Qu (tsf)	MOIST T (%)	Surface Water Elev. <u>n/a</u>				DEPTH H (ft)	BLOW W S (/6")	UCS Qu (tsf)	MOIST T (%)	
				Stream Bed Elev. <u>n/a</u>								
				Groundwater Elevation:								
				First Encounter <u>Dry to 5.0'</u> ▼								
				Upon Completion <u>n/a</u> ▼								
				After _____ Hrs. _____ ▼								
750.9				4.5" ASPHALT, 7.5" CONCRETE								
	2		122					4		123		
748.9				CLAY LOAM—brown—stiff (A-6)					8			
	3	1.7B	13					13	1.2B	14		
	2			SILT—brown—loose (A-4)					4		123	
	2							7				
746.4	-5	4	2.5P	21			726.9	-25	10	1.2B	14	
	2		123	CLAY LOAM—brown—medium stiff (A-6)								
	3			End Of Boring @ -25.0'								
	4	0.9B	14	Hollow Stem Augers To -5.0'								
743.9				Rotary Drilling To Completion								
	10			CME Automatic Hammer								
	12			5.0' Of 4.0"Ø Casing Used								
	-10	15	NP	19	Fine SAND—brown—medium dense (A-2/A-3)					-30		
	10											
	8											
738.9	8	NP	20	CLAY LOAM—gray—stiff to very stiff (A-6)								
	3		121									
	5											
	-15	7	1.5B	13				-35				
	4		125	CLAY LOAM—gray—stiff to very stiff (A-6)								
	6											
	8	1.1B	13									
	3		125									
	6											
	-20	9	2.0B	13				-40				

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B—Bulge, S—Shear, P—Penetrometer) ST—Shelby Tube Sample VS—Vane Shear Test
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
 NR—No Recovery PS—Pushed Spoon

ROADWAY GEOTECHNICAL REPORT
Red Gate Road, IL Route 25 and IL Route 31
Red Gate Road Bridge Project
IDOT Job: P-91-322-04
Section: 04-00092-00-BR
Kane County, Illinois

STRUCTURAL ENGINEER:

Mr. Abdou Hossam, P.E., S.E.

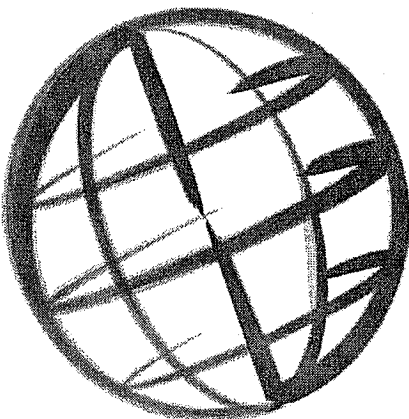
Alfred Benesch & Company
205 North Michigan Ave.
Suite 2400
Chicago, Illinois 60601
(312) 565-0450

Prepared by:

Geo Services, Inc.
805 Amherst Court
Suite 204
Naperville, Illinois 60565
(630) 305-9186

JOB NO. 10191

October 18, 2011





October 18, 2011

Alfred Benesch & Company
205 N. Michigan Avenue, Suite 2400
Chicago, Illinois 60601

Attention: Mr. Hossam Abdou, P.E., S.E.

Job No. 10191

Re: Roadway Geotechnical Report
Red Gate Road, IL Route 25 and IL Route 31
Red Gate Road Bridge Project
Section Number: 04-00092-00-BR
IDOT Job Number: P-91-322-04
Kane County, Illinois

Dear Mr. Abdou:

The following report presents the geotechnical analysis and recommendations for the Red Gate Road Roadway for the Red Gate Road Bridge Project. A total of sixteen (16) soil borings (RB-01 through RB-09 (minus RB-03), RW-05 through RW-08, RW-13, RW-05A, RW-06A and RW-08A) were completed at the site by Geo Services, Inc. (GSI). Copies of the boring logs and boring location diagram are included in this report.

If there are any questions with regard to the information submitted in this report, or if we can be of further assistance to you in any way, please do not hesitate to contact us.

Very truly yours,

GEO SERVICES, INC.

Andrew J. Ptak, P.E.
Office Manager

Alex Barlan, P.E.
Project Engineer

enc.

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SECTION 01: INTRODUCTION

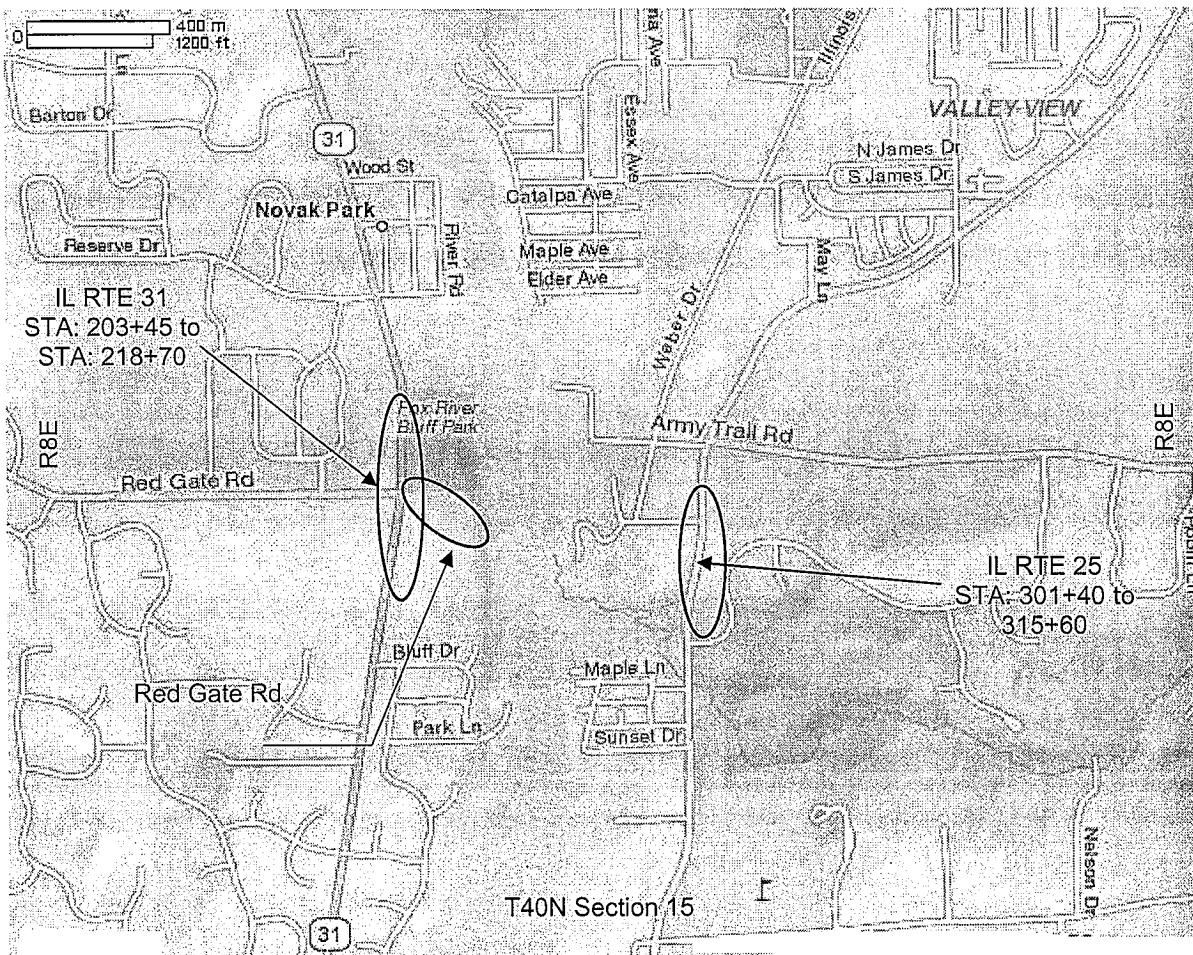
This report presents the results of the geotechnical investigation for the proposed Red Gate Road for the Red Gate Road Bridge Project in Kane County, Illinois, IDOT Project Number: P-91-322-04. The result of the sixteen (16) soil borings (RB-01 through RB-09 (minus RB-03), RW-05 through RW-08, RW-13, RW-05A, RW-06A and RW-08A) completed by Geo Services, Inc., along with a site location map, soil boring location diagram and laboratory test results, are included with this report.

This report refers to the Red Gate Road roadways portion of the project. IL Route 31 and IL Route 25 are to be reconstructed and portions widened, and Red Gate Road is to be extended across the Fox River. The proposed Red Gate Road roadway will extend from station 95+50 to 109+05 and will continue from 131+10 to 132+50, connecting IL Route 31 and IL Route 25. Project limits for the reconstruction of IL Route 31 extend from 203+45 to 218+70, and the project limits for the reconstruction of IL Route 25 extend from 301+35 to 315+60. The project locations are shown on the site map on the following page.

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLANS FOR PROPOSED

Section No.: 04-00092-00-BR
Red Gate Road Bridge Project
Kane County, Illinois

T40N Section 15
3rd P.M.



SECTION 02: GEOLOGY

According to the 1971 ISGS Circular #460: Summary of the Geology of the Chicago Area/ISGS Geologic Materials to a Depth of 20' - Kane County, the project site is located in a transitional area where surficial soils to the west consist of Cahokia Alluvium deposits overlying Henry Formation soils and the area to the east has Henry Formation soils at the surface. Cahokia Alluvium soils generally consist of recent flood plain deposits of silt, sand and gravel which can be organic and Henry Formation deposits generally consist of sand and gravel deposited in valley trains which are typically well sorted and evenly bedded.

The ISGS Circular C542 15 Meter Stack Map confirms that surficial soils in the vicinity of the project consist of Henry Formation soils and that bedrock is in excess of 50.0' below ground surface. A review of ISGS well records reviewed on-line confirms that bedrock can be expected to be encountered at a depth of in excess of 100.0' in the vicinity of the project site.

According to the 1984 ISGS Berg Circular #532: "Potential for Contamination of Shallow Aquifers in Illinois, the project site is located in a transitional area with an A2 Zone to the west towards the Fox River, an E Zone to the north and a B1 Zone to the south. A2 Zones are defined as areas where there is more than 20.0' of permeable sand deposits at the surface, B1 Zones are defined as an area with less than 20.0' of sand and gravel deposits that overly relatively impermeable till or bedrock and E Zones are areas with in excess of 50-ft of relatively impermeable silty or clayey tills with no evidence of interbedded granular layers.

The Wetland Inventory database reviewed on-line at the US Fish & Wildlife Service website indicates that there are no wetland areas identified within the limits of the project site.

The USDA Natural Resources Conservation Service Soil Survey database indicates that surficial soils in the vicinity of the project site consist of Ozaukee and Barony Silt Loams. Neither of these soils are overly organic (3.0% or less) and potential frost action ranges from moderate to high.

According to readily available ISGS sources, there are no documented coal mining operations in near vicinity to the project site and seismic activity is noted to be very low.

SECTION 03: CLIMATIC CONDITIONS

The climate within the area of this project fall within the temperate humid, continental range and is characterized by cold conditions in the winter and warm conditions in the summer. The winter average daily temperature is 24° F and the average daily minimum temperature is 16° F. The summer average temperature is 71° F and the summer average daily maximum temperature is 83° F. The total annual precipitation for this area is 34.7" with approximately 63% falling between April and September. The average seasonal snowfall for this area is 32.0".

Local Climatological Data, as measured at O'Hare International Airport (ORD), for the three (3) month period prior to and during drilling, including total precipitation, average temperature and snowfall are summarized below:

Table 1 – Climate Conditions

MONTH-Yr	ppt (in)		Temp (°F)		Snow (in)	
	Total	Departure From Norm	Average Temp	Departure From Norm	Total	Monthly Norm
Mar-11	2.62	-0.03	36.3	-1.0	1.0	6.0
Apr-11	4.90	+1.22	47.7	-0.1	0.6	1.6
May-11	7.27	+3.89	57.9	-0.8	Trace	0.0
Jun-11	3.39	-0.24	69.5	+1.3	0.0	0.0

Total precipitation during the three months preceding drilling was above normal and temperatures were lower than normal. During the month that drilling was performed, total precipitation was near normal; however, and temperatures were hotter than normal. The climatic conditions encountered prior to and during drilling operations suggest that the soils should be wetter than normal moisture levels.

SECTION 04: SUBSURFACE INVESTIGATION PROCEDURES

The borings were performed during the month of June, 2011, with a truck-mounted drilling rig equipped with a CME automatic hammer, and were advanced by means of hollow stem augers to a depth of 10 feet and rotary-drilling techniques to completion. Representative soil samples were obtained employing split spoon sampling procedures in accordance with AASHTO Method T-206. Samples obtained in the field were returned to our laboratory for further examination and testing.

Split spoon sampling involves driving a 2.0-inch outside diameter split-barrel sampler into the soil with a 140-pound weight falling freely through a distance of 30 inches. Blow counts are recorded at 6" intervals and the blow counts are shown on the boring logs. The number of blows required to advance the sampler the last 12 inches is termed the Standard Penetration Resistance (N). The N value is an indication of the relative density of the soil.

SECTION 05: LAB TESTING PROGRAM

The test procedures were performed in accordance with test procedures discussed in the IDOT Geotechnical Manual. All split-spoon samples obtained from the drilling operation were visually classified in the field. Cohesive samples were tested for unconfined compressive strength using an IDOT modified RIMAC test device and/or calibrated penetrometer in the field.

The soil testing program included performing water content, density and either unconfined compression and/or calibrated penetrometer tests on the cohesive samples recovered. These tests were performed upon representative portions of the samples obtained in the field. The results of the above testing, along with a visual classification of the material based upon both the Illinois textural classification and the AASHTO Soil Classification System, are indicated on the boring logs.

SECTION 06: SEISMIC CONDITIONS

The site has a seismic acceleration coefficient of 0.04g (Seismic Category A) and a Soil Profile Type I; the project site is considered to be in a low seismic area and is considered a non-extreme event. Liquefiable layers and scour are not expected to impact the design of the embankment.

SECTION 07: SOIL CONDITIONS

Boring logs can be found in Appendix C and soil profiles in Appendix B. The stratification lines shown on the boring logs represent the approximate boundary between soil types, and the actual transition may be gradual.

Red Gate Road

Borings RB-01 and RB-02 were performed for Red Gate Road. RB-01 was performed on the existing roadway and had a pavement section of 6 inches of asphalt. RB-02 had 3 inches of topsoil. Underlying the pavement and surficial soils was typically stiff to very stiff clay loam soils to the completion depth of 10 feet. However, RB-02 encountered medium dense sand and gravel from a depth of 6 feet to 10 feet (moisture content of 8%). Moisture content for the clay loam soils were within the range of 16% to 29% with an average of 23%.

IL Route 31

Borings RB-05 to RB-08 were performed on IL Route 31. Pavement conditions consisted of 12 inches of asphalt overlying 4 inches of crushed stone in RB-05, 6 inches of asphalt overlying 2.5 feet of sandy clay loam fill, 6 inches of asphalt overlying 3 inches of concrete in RB-07, and 8 inches asphalt overlying 4 inches of concrete. Underlying the pavement, soils encountered were typically stiff to very stiff clay loam soils to the completion depth of 10 feet. Moisture content for the clay loam soils were within the range of 12% to 28% with an average of 19%.

IL Route 25

Borings RB-04, RB-09, RW-05 through RW-08, RW-13, RW-05A, RW-06A and RW-08A) were performed for IL Route 25. RB-04 was performed near IL Route 25 on Pinelands Road and had 2.5 inches of asphalt overlying 6 inches of gravel. RB-09 and the RW borings were performed on the IL- Route 25 Roadway, and pavement conditions consisted of 6 to 7 inches of asphalt overlying 6 to 7 inches of concrete for the borings with 1 to 2 feet of sand and gravel fill beneath the pavement only in RW-07 and RW-08. Underlying the pavement sections, borings typically encountered stiff to very stiff clay loam soils, to completion. Hard clay loam soils were encountered in RB-09 and RW-08 within the surficial 5 feet. Soft clay loam soils were encountered from a depth of 3 feet to 8 feet and medium dense sand (moisture content of 20%) from a depth of 13 feet to 14 feet in RW-13. Moisture content for the clay loam soils were within the range of 10% to 22% with an average of 14%.

In the "Alternate" (i.e. RW-05A), surficial conditions consisted of 8 inches of topsoil in RW-08A overlying clay loam soils and clay loam soils in RW-05A and RW-06A to completion. Clay loam soils in the "Alternate borings" had moisture contents within 12% to 20% with an average of 15%.

SECTION 08: GROUND WATER CONDITIONS

Due to rotary drilling techniques, water level after rotary drilling technique cannot be taken. Groundwater was encountered in borings RB-09, RW-07 and RW-08 from an elevation of 739 to 744 and for RW-13 at an elevation of 753. We estimate the long-term groundwater be around 740 sloping upward to 753 in the northern portion of the project. However, fluctuations in the amount of water accumulated and in the hydrostatic water table can be anticipated depending upon variations in precipitation and surface runoff.

SECTION 09: ANALYSIS

Slope Stability

The majority of the alignment is considered to match or to be similar to existing conditions. Various cross sections throughout the alignment have been investigated, and a worst case scenario of an 5-foot high slope (2H:1V) has been used for the slope stability analysis. Slope stability has been analyzed using X-Stabl slope analysis program using both the Bishop and Janbu methods of analysis. A factor of safety greater than 2.0 was calculated. We recommend a factor of safety of 2.0 be used for design. No slope stability concerns were identified.

Settlement

Portions of the embankment are to include fill heights up to 5 feet in height. The worst case scenario of 5 feet of fill has been analyzed for settlement calculations, and settlement is calculated to be less than 1/2 inch of settlement in the proposed area for IL Route 31, IL Route 25 and Proposed Red Gate Road roadways.

Drainage Conditions

The stratification lines shown on the boring logs represent the approximate boundary between soil types, and the actual transition may be gradual. Surficial soils consisted of varying material of stiff to very stiff clays or medium dense to dense sand and gravel within the top 10 to 15 feet of the borings. Moisture contents for the clay soils were typically in the teens. Soil conditions are explained in more detail per area of the project in each specific section. It is anticipated that more than 3 feet of clay fill will be added for the majority of the roadway alignment in the ditch areas. Due to the clay fill (more than 3 feet of A-6 soil and constructed to the IDOT Standard Specifications manual), greater

than 0.5% grade slope and anticipated sloped ditches, we rate drainage conditions as “good”.

SECTION 10: RECOMENDATIONS

Roadway Recommendations

We recommend that the subgrade soils, consisting of clay loam soils, are suitable for support of the roadway with exception to the areas shown in the following Table 2 – Remedial Treatments.

Table 1 – Remedial Treatment

Station (Boring)	Subgrade Description (water content)	Unconfined Compressive Strength (tsf)	Remedial Treatment Depth (feet)¹	Reason for Remedial Treatment	Approximate Elevation to Suitable Soil	Remedial Treatment
Sta 314+30 to 315+60 (RW-13)	CLAY LOAM (17%)	0.25	4' max (west ditch area)	Low strength	757	Structural Fill

¹Remedial Treatment should be verified in field.

Soil conditions should be verified, and actual remediation (if any) should be determined in the field at the time of construction based on guidelines presented in the Illinois Department of Transportation Geotechnical Manual. Evaluation of soils in the field should be performed based on the guidelines presented in the IDOT Subgrade Stability Manual. It should be expected that 6 inches to 12 inches of topsoil to be present at the surface. Subgrade preparation should be followed by the guidelines in the IDOT Standard Specifications for Road and Bridge Construction.

Silty clay loam soils will form the subgrade for the majority of the alignment. Although there is sand and gravel near the surface of some borings (RW-07 and RW-08) for IL Route 25, the majority of the subgrade consists of clay soils and the new fill is to consist of cohesive material. Red Gate Road, IL Route 25 and IL Route 31 roadway should be designed with a Subgrade Support Rating (SSR) of Poor. We recommend that the pavement design be performed utilizing a Poor rating, with an Illinois Bearing Ratio (IBR) of 2.0. Also, we recommend a shrinkage factor of 15% for cohesive or granular soils.

Any undercutting should be performed in such a manner as to minimize disturbance to the undercut subgrade. Heavy equipment traffic directly on the undercut subgrade should be minimized. The actual need for the recommended treatment should be determined in the field at the time of construction based on guidelines presented in the Illinois Department of Transportation Geotechnical Manual under the direction of a

licensed geotechnical engineer. Evaluation of soils in the field should be performed based on the guidelines presented in the IDOT Subgrade Stability Manual.

Prior to placing any fill at the site, it is recommended that the exposed surface at or near grade be proofrolled with the heaviest available equipment to determine if there are any localized deposits of soft or unsuitable materials. During the proofrolling procedure, the exposed surface is rolled with the heaviest piece of construction equipment available at the site, such as a heavily loaded tandem axle dump truck having a gross weight of not less than 25 tons. Any such deposits, as observed by deflection of the subgrade under the wheels of the proofrolling equipment, should be removed and replaced with an approved fill free of organic matter and debris. The silty clay loam soils are sensitive to moisture changes and some softening/disturbance of the exposed soils should be expected following periods of precipitation. The remediation may include lime stabilization or undercutting and placement of a stabilization stone such as IDOT gradation CA-1 or PGEs materials or approved fill material.

In addition, borrow and excavation material should be in accordance with section 6.2 of the IDOT Geotechnical Manual. In particular, soils shall be tested and conform to the required testing and permissible limits as defined in the following table (taken from Table 6-1 in the IDOT Geotechnical Manual). Materials that do not meet the permissible limits should be confined to the embankment core encompassed with at least 24-inches of cover material, which meet testing requirements in the following Table 2.

Table 2 – Requirements of Borrow Soils for Top 24-in Subgrade

Required Test	AASHTO Method	Permissible Limit
SDD (at OMC)	T-99 (Method C)	90 pcf min *
Organic Content	T-194	10% max
Percent Silt and Fine Sand	T-88	65% max **
PI	T-90	12% min
LL	T-89	50% max
Shear Strength © at 95% SDD	T-208 or T-234	1,000 psf min ***
SO ₃ ****	ASTM C-618	5% max

- * As Per Standard Specification
- ** Frost Susceptibility Criteria
- *** For Engineered Embankments which are greater than 15ft in height or greater
- **** Only for CCB

Fill materials placed at the site should be consist of an inorganic approved material, compacted to a minimum 95% of AASHTO T-99 (ASTM D-698), standard proctor method. Moisture levels for fill material should be maintained within a maximum +/- 3% of the optimal moisture content or as directed by the engineer.

Construction of the proposed roadway improvements should be performed in accordance with the current Illinois Department of Transportation (IDOT) “Standard Specifications for Road and Bridge Construction. In particular, refer to Section 202, “Earth and Rock Excavation”, Section 205, “Embankment” and Section 301, “Subgrade Preparation”.

SECTION 11: GENERAL QUALIFICATIONS

The analysis and recommendations presented in this report are based upon the data obtained from the soil borings performed at the indicated locations and from any other information discussed in this report. This report does not reflect any variations that may occur between borings or across the site. In addition, the soil samples cannot be relied on to accurately reflect the strata variations that usually exist between sampling locations. The nature and extent of such variations may not become evident until construction. If variations appear evident, it will be necessary to reevaluate the recommendations of the report. In addition, it is recommended that Geo Services Inc. be retained to perform construction observation and thereby provide a complete professional geotechnical engineering service through the observational method.

This report has been prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted geotechnical engineering practices. No other warranties, either expressed or implied, are intended or made. In the event that any changes in the nature, design or location of the project as outlined in this report are planned, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and the conclusions of this report modified or verified in writing by the geotechnical engineer. Also note that Geo Services Inc. is not responsible for any claims, damages, or liability associated with any other party's interpretation of this report's subsurface data or reuse of the report's subsurface data or engineering analyses without the express written authorization of Geo Services Inc.

APPENDIX A
GENERAL NOTES

GENERAL NOTES

CLASSIFICATION

American Association of State Highway & Transportation Officials (AASHTO) System used for soil classification.

Cohesionless Soils

<u>Relative Density</u>	<u>No. of Blows per foot N</u>
Very Loose	0 to 4
Loose	4 to 10
Medium Dense	10 to 30
Dense	30 to 50
Very Dense	Over 50

TERMINOLOGY

Streaks are considered to be paper thick. **Lenses** are considered to be less than 2 inches thick. **Layers** are considered to be less than 6 inches thick. **Stratum** are considered to be greater than 6 inches thick.

Cohesive Soils

<u>Consistency</u>	<u>Unconfined Compressive Strength - qu (tsf)</u>
Very Soft	Less than 0.25
Soft	0.25 - 0.5
Medium Stiff	0.5 - 1.0
Stiff	1.0 - 2.0
Very Stiff	2.0 - 4.0
Hard	Over 4.0

DRILLING AND SAMPLING SYMBOLS

SS: Split Spoon 1-3/8" I.D., 2" O.D.	HS: Housel Sampler
ST: Shelby Tube 2" O.D., except where noted	WS: Wash Sample
AS: Auger Sample	FT: Fish Tail
DB: Diamond Bit - NX: BX: AX	RB: Rock Bit
CB: Carboly Bit - NX: BX: AX	WO: Wash Out
OS: Osterberg Sampler	

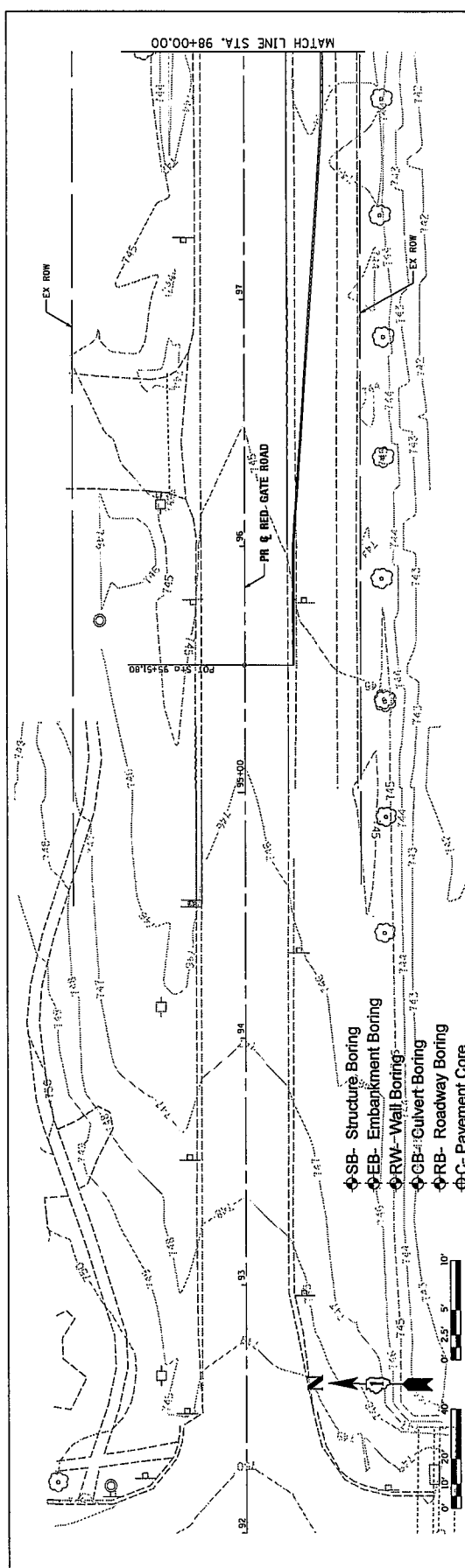
Standard "N" Penetration: Blows per foot of a 140 lb. hammer falling 30" on a 2" O.D. Split Spoon

WATER LEVEL MEASUREMENT SYMBOLS

WL: Water	WD: While Drilling
WCI: Wet Cave In	BCR: Before Casing Removal
DCI: Dry Cave In	ACR: After Casing Removal
WS: While sampling	AB: After Boring

Water levels indicated on the boring logs are the levels measured in the boring at the times indicated. In pervious soils, the indicated elevations are considered reliable ground water levels. In impervious soils, the accurate determination of ground water elevations is not possible in even several days observation, and additional evidence on ground water elevations must be sought.

APPENDIX B
PLAN AND PROFILES



STATION	ELEVATION	DEPTH	CLASSIFICATION	MOISTURE	LIQUID LIMIT	PLASTICITY INDEX	GROUP INDEX
760							
755							
750							
745							
740							
735							
730							
725							
720							

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

RED GATE ROAD OVER THE FOX RIVER
SOIL BORING PLAN & PROFILE

SCALE: H 1"=20', V 1"=5' | SHEET NO. 1 OF 3 SHEETS | STA. 98+00 TO STA. 98+00

FILE NAME: REVISED -
DRAWN: RMC
CHECKED: AJP
DATE: 9/27/2011

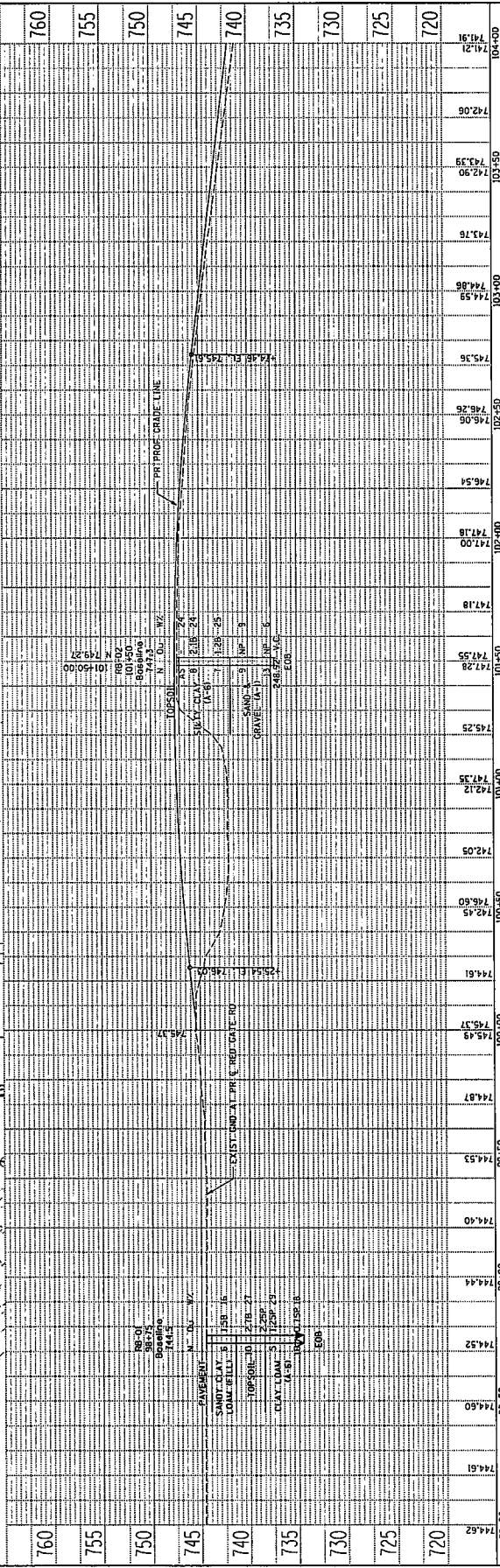
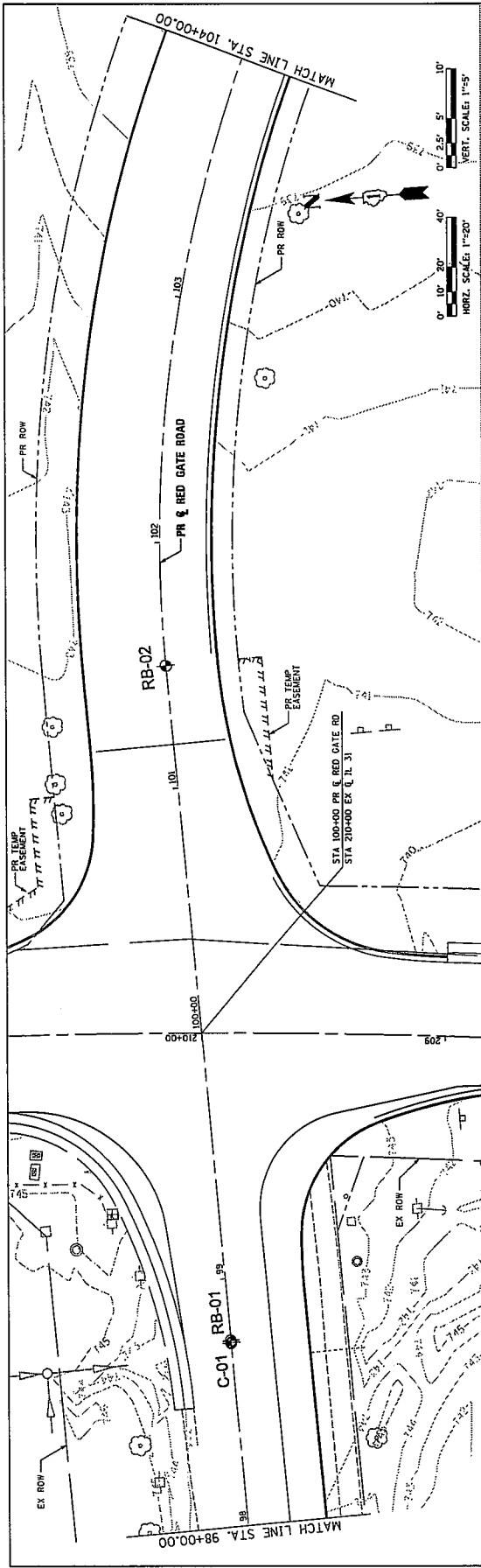
PROJECT: I-55
CONTRACT NO. 04-0002-00-ER
SHEET NO. 1 OF 3 SHEETS

PROFILE

DATE	
BY	
CHECKED	
APPROVED	

PLAN

DATE	
BY	
CHECKED	
APPROVED	



STATION	ELEVATION	SOIL TYPE	DEPTH (FEET)
98+00	744.62	PAVEMENT	0.00
98+50	744.50	SANDY CLAY	1.58
99+00	744.44	LOAM FILL	2.78
99+50	744.52	TOPSOIL	2.85
100+00	744.44	CLAY LOAM	1.25
100+50	744.60	GRAVEL	1.15
101+00	742.05	SAND	1.15
101+50	745.25	GRAVEL	1.15
102+00	747.18	SAND	1.15
102+50	746.54	GRAVEL	1.15
103+00	744.86	SAND	1.15
103+50	743.95	GRAVEL	1.15
104+00	742.06	SAND	1.15

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

RED GATE ROAD OVER THE FOX RIVER
SOIL BORING PLAN & PROFILE

SCALE: H 1"=20', V 1"=5'

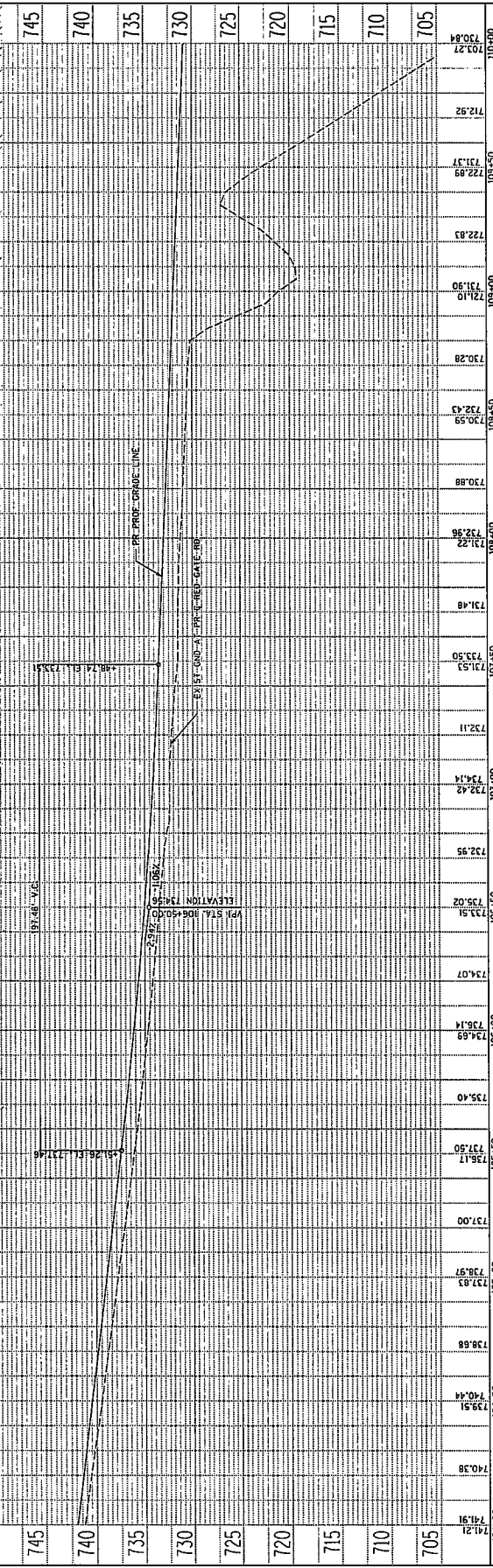
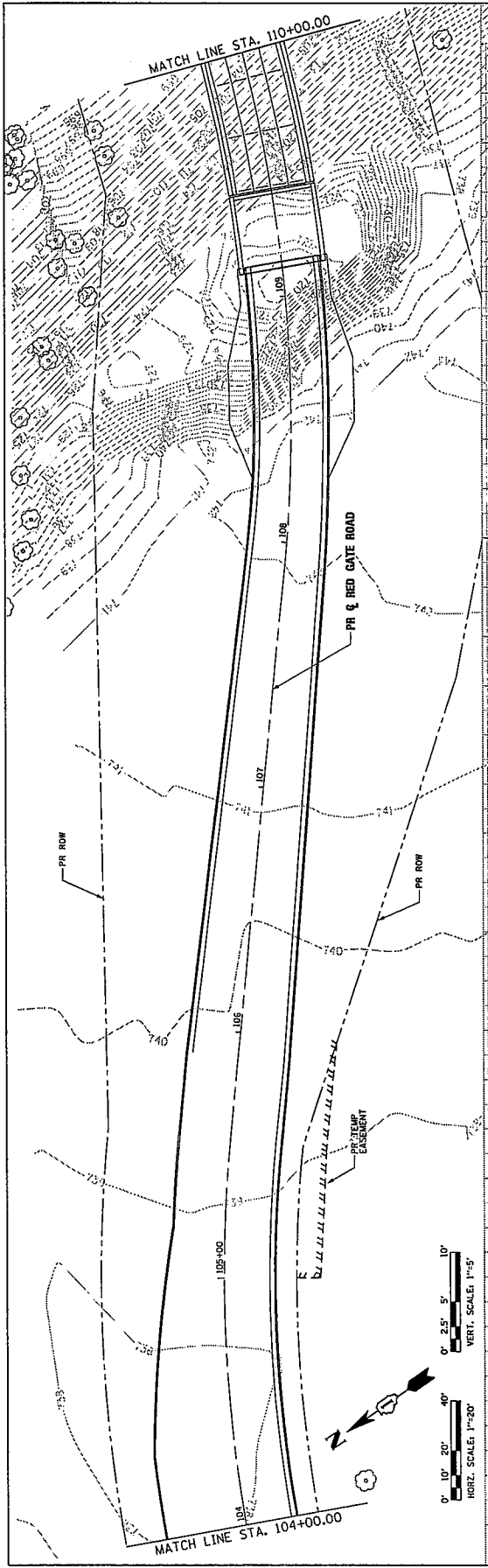
SHEET NO. 2 OF 3 SHEETS

STA. 98+00 TO STA. 104+00

DATE: 9/27/2011

DESIGNED BY: [Name]
CHECKED BY: [Name]
DATE: 9/27/2011

STATION	ELEVATION	SOIL TYPE	DEPTH (FEET)
104+00	741.21	PAVEMENT	0.00
104+50	741.18	SAND	1.15
105+00	741.00	GRAVEL	1.15
105+50	743.35	SAND	1.15
106+00	745.35	GRAVEL	1.15
106+50	746.06	SAND	1.15
107+00	746.54	GRAVEL	1.15
107+50	747.18	SAND	1.15
108+00	747.00	GRAVEL	1.15
108+50	747.18	SAND	1.15
109+00	747.55	GRAVEL	1.15
109+50	747.28	SAND	1.15
110+00	747.35	GRAVEL	1.15
110+50	747.12	SAND	1.15
111+00	747.35	GRAVEL	1.15
111+50	747.05	SAND	1.15
112+00	747.18	GRAVEL	1.15
112+50	747.18	SAND	1.15
113+00	747.18	GRAVEL	1.15
113+50	747.18	SAND	1.15
114+00	747.18	GRAVEL	1.15
114+50	747.18	SAND	1.15
115+00	747.18	GRAVEL	1.15
115+50	747.18	SAND	1.15
116+00	747.18	GRAVEL	1.15
116+50	747.18	SAND	1.15
117+00	747.18	GRAVEL	1.15
117+50	747.18	SAND	1.15
118+00	747.18	GRAVEL	1.15
118+50	747.18	SAND	1.15
119+00	747.18	GRAVEL	1.15
119+50	747.18	SAND	1.15
120+00	747.18	GRAVEL	1.15
120+50	747.18	SAND	1.15
121+00	747.18	GRAVEL	1.15
121+50	747.18	SAND	1.15
122+00	747.18	GRAVEL	1.15
122+50	747.18	SAND	1.15
123+00	747.18	GRAVEL	1.15
123+50	747.18	SAND	1.15
124+00	747.18	GRAVEL	1.15
124+50	747.18	SAND	1.15
125+00	747.18	GRAVEL	1.15
125+50	747.18	SAND	1.15
126+00	747.18	GRAVEL	1.15
126+50	747.18	SAND	1.15
127+00	747.18	GRAVEL	1.15
127+50	747.18	SAND	1.15
128+00	747.18	GRAVEL	1.15
128+50	747.18	SAND	1.15
129+00	747.18	GRAVEL	1.15
129+50	747.18	SAND	1.15
130+00	747.18	GRAVEL	1.15
130+50	747.18	SAND	1.15
131+00	747.18	GRAVEL	1.15
131+50	747.18	SAND	1.15
132+00	747.18	GRAVEL	1.15
132+50	747.18	SAND	1.15
133+00	747.18	GRAVEL	1.15
133+50	747.18	SAND	1.15
134+00	747.18	GRAVEL	1.15
134+50	747.18	SAND	1.15
135+00	747.18	GRAVEL	1.15
135+50	747.18	SAND	1.15
136+00	747.18	GRAVEL	1.15
136+50	747.18	SAND	1.15
137+00	747.18	GRAVEL	1.15
137+50	747.18	SAND	1.15
138+00	747.18	GRAVEL	1.15
138+50	747.18	SAND	1.15
139+00	747.18	GRAVEL	1.15
139+50	747.18	SAND	1.15
140+00	747.18	GRAVEL	1.15
140+50	747.18	SAND	1.15
141+00	747.18	GRAVEL	1.15
141+50	747.18	SAND	1.15
142+00	747.18	GRAVEL	1.15
142+50	747.18	SAND	1.15
143+00	747.18	GRAVEL	1.15
143+50	747.18	SAND	1.15
144+00	747.18	GRAVEL	1.15
144+50	747.18	SAND	1.15
145+00	747.18	GRAVEL	1.15
145+50	747.18	SAND	1.15
146+00	747.18	GRAVEL	1.15
146+50	747.18	SAND	1.15
147+00	747.18	GRAVEL	1.15
147+50	747.18	SAND	1.15
148+00	747.18	GRAVEL	1.15
148+50	747.18	SAND	1.15
149+00	747.18	GRAVEL	1.15
149+50	747.18	SAND	1.15
150+00	747.18	GRAVEL	1.15
150+50	747.18	SAND	1.15
151+00	747.18	GRAVEL	1.15
151+50	747.18	SAND	1.15
152+00	747.18	GRAVEL	1.15
152+50	747.18	SAND	1.15
153+00	747.18	GRAVEL	1.15
153+50	747.18	SAND	1.15
154+00	747.18	GRAVEL	1.15
154+50	747.18	SAND	1.15
155+00	747.18	GRAVEL	1.15
155+50	747.18	SAND	1.15
156+00	747.18	GRAVEL	1.15
156+50	747.18	SAND	1.15
157+00	747.18	GRAVEL	1.15
157+50	747.18	SAND	1.15
158+00	747.18	GRAVEL	1.15
158+50	747.18	SAND	1.15
159+00	747.18	GRAVEL	1.15
159+50	747.18	SAND	1.15
160+00	747.18	GRAVEL	1.15
160+50	747.18	SAND	1.15



FILE NAME	DESIGNED BY	REVISION	DATE
PROJECT NO.	DRAWN BY	REVISION	
USER NAME	CHECKED BY	REVISION	
POST DATE	DATE	REVISION	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

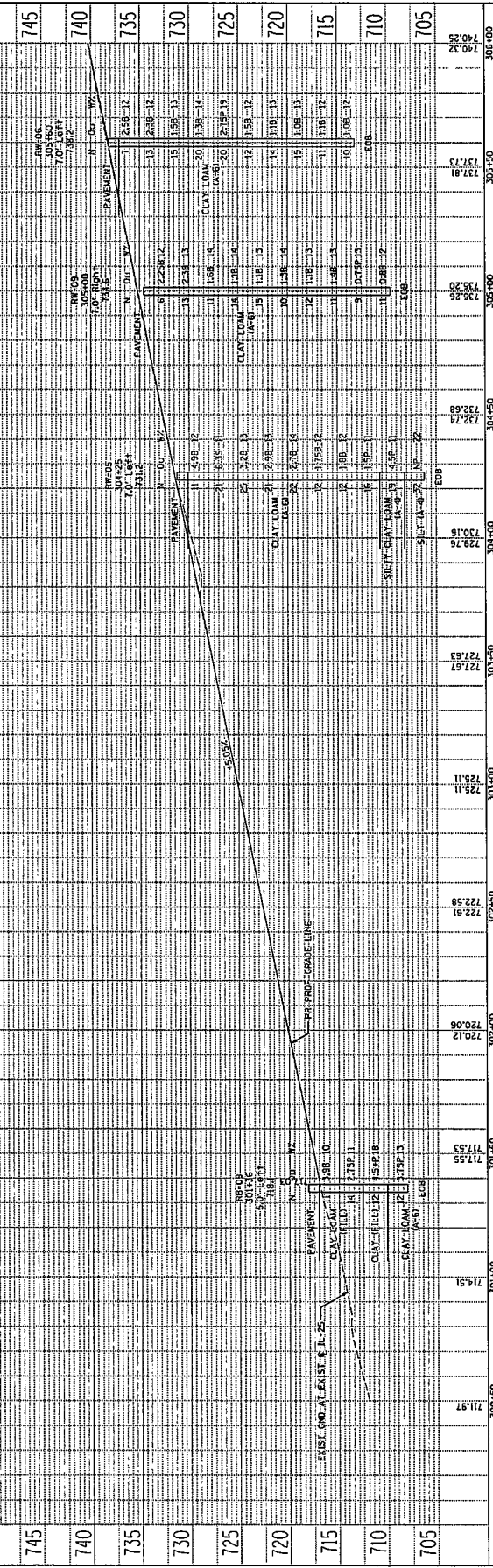
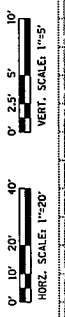
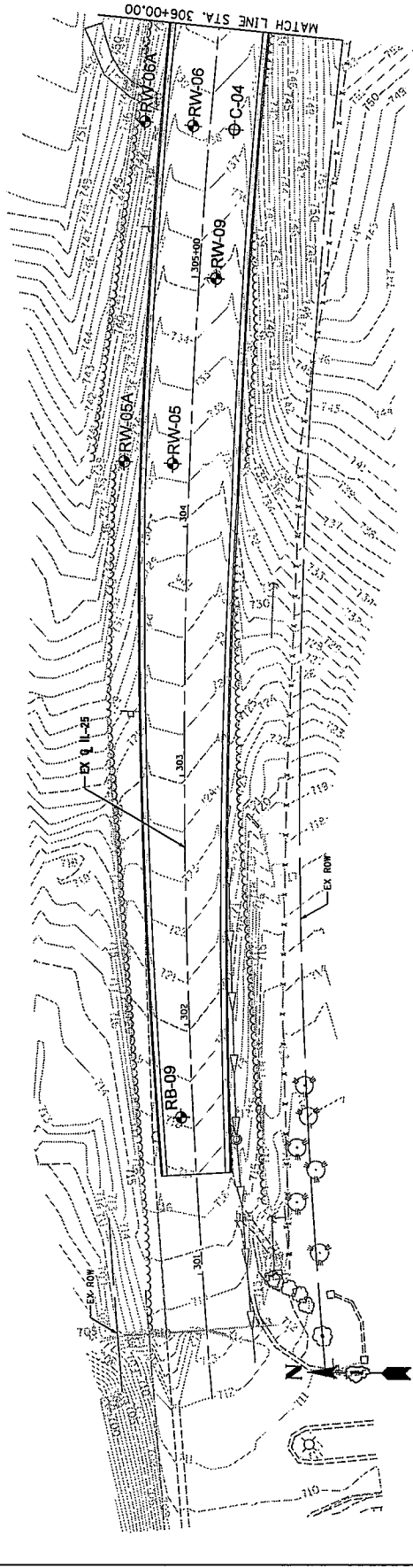
RED GATE ROAD OVER THE FOX RIVER
SOIL BORING PLAN & PROFILE

SCALE: H 1"=20' V 1"=5' SHEET NO. 3 OF 3 SHEETS TOTAL 104+00 TO STA. 110+00

PROJECT NO. 04-0002-CO-08
* E. Route 25 & E. Route 311 CONTRACT NO.
ILLINOIS 10-1002

PL. AN.	DATE
NO.	DATE
NOTE BOOK	DATE
NO.	DATE

PROFILE	DATE
NO.	DATE
NOTE BOOK	DATE
NO.	DATE



STATION	PROF. ELEV.	PLAN ELEV.	SOIL BORING	DEPTH (FEET)	DESCRIPTION
300+50	711.97	714.51	RP-09	10	PAVEMENT
301+00	717.55	717.55	RP-09	10	PAVEMENT
301+50	720.06	720.06	RP-09	10	PAVEMENT
302+00	720.12	720.12	RP-09	10	PAVEMENT
302+50	722.58	722.58	RP-09	10	PAVEMENT
303+00	725.11	725.11	RP-09	10	PAVEMENT
303+50	727.67	727.67	RP-09	10	PAVEMENT
304+00	729.76	729.76	RP-09	10	PAVEMENT
304+50	732.24	732.24	RP-09	10	PAVEMENT
305+00	734.74	734.74	RP-09	10	PAVEMENT
305+00	737.24	737.24	RP-09	10	PAVEMENT
305+00	740.32	740.32	RP-09	10	PAVEMENT

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

RED GATE ROAD OVER THE FOX RIVER
SOIL BORING PLAN & PROFILE

SCALE: H 1"=20', V 1"=5'

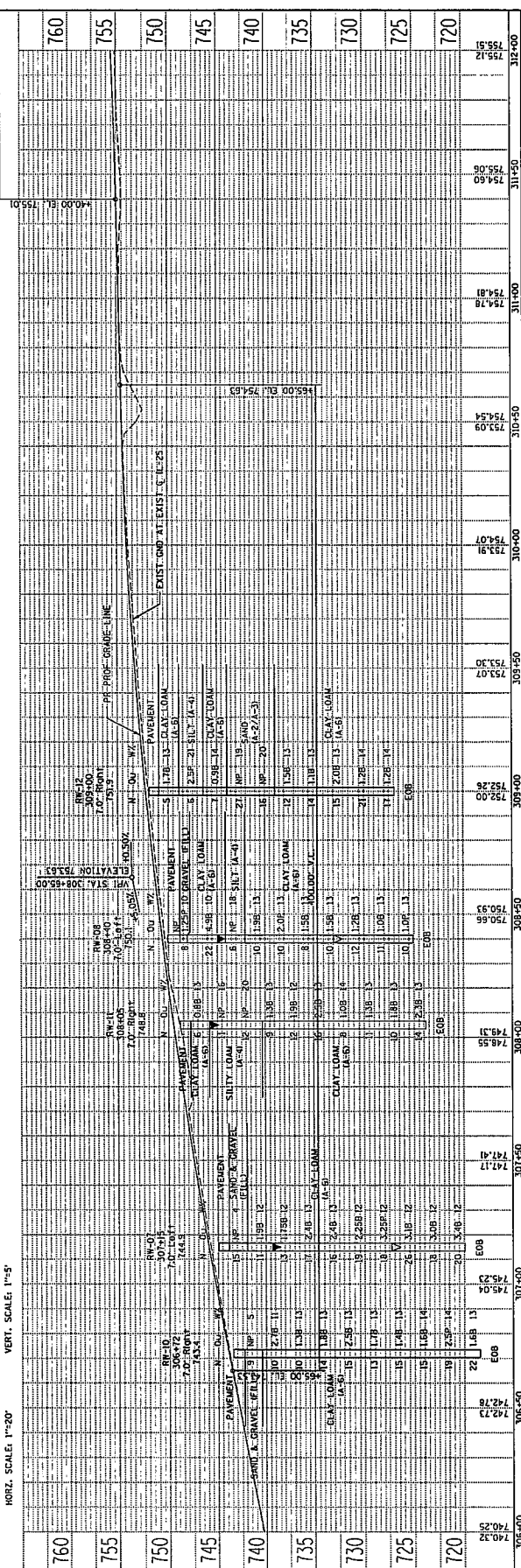
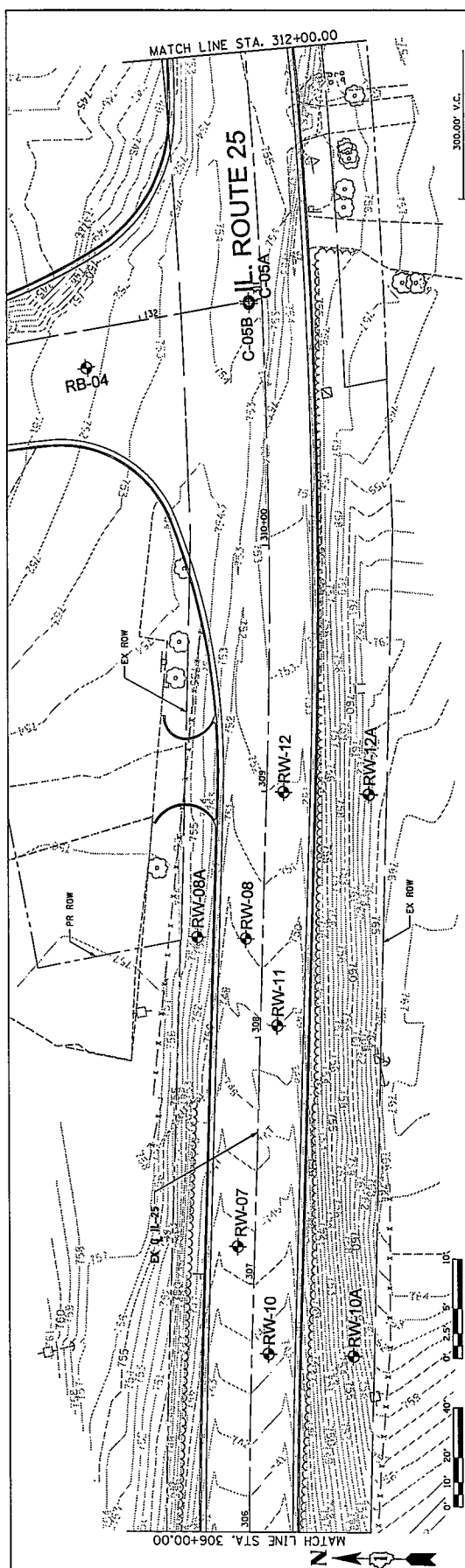
SHEET NO. 4 OF 8 SHEETS STA. 300+00 TO STA. 305+00

DATE: 9/22/01

DESIGNED BY: BNC
DRAWN BY: BNC
CHECKED BY: JJP
DATE: 9/22/01

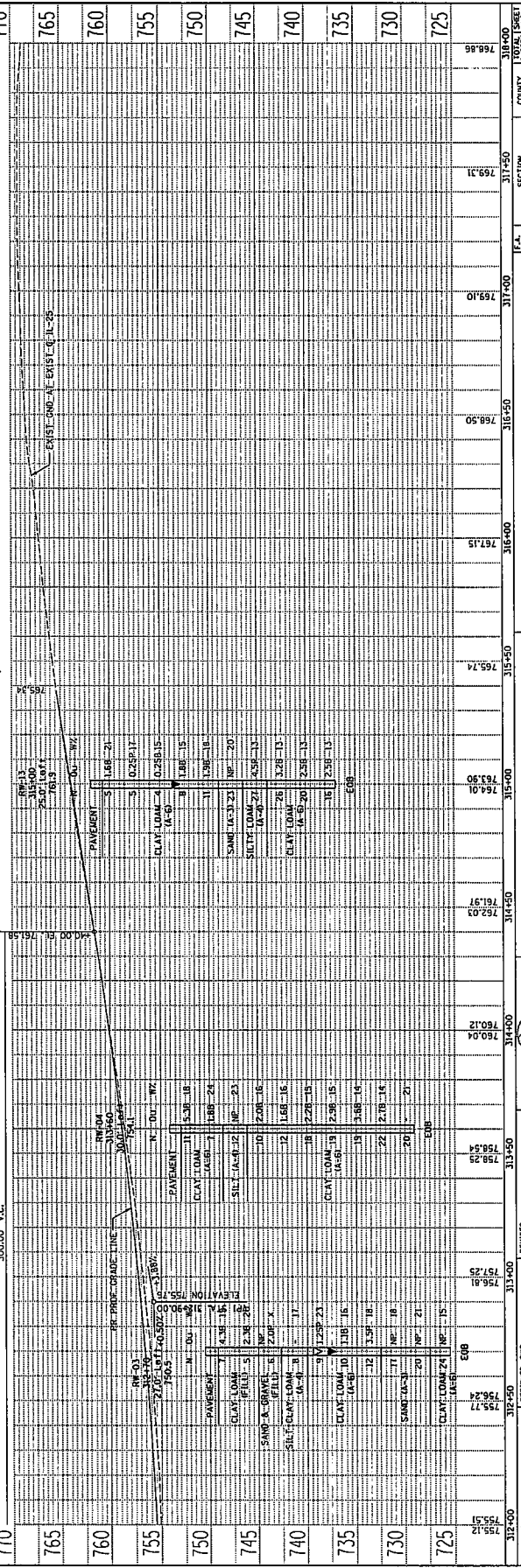
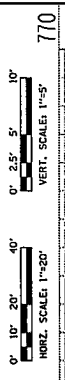
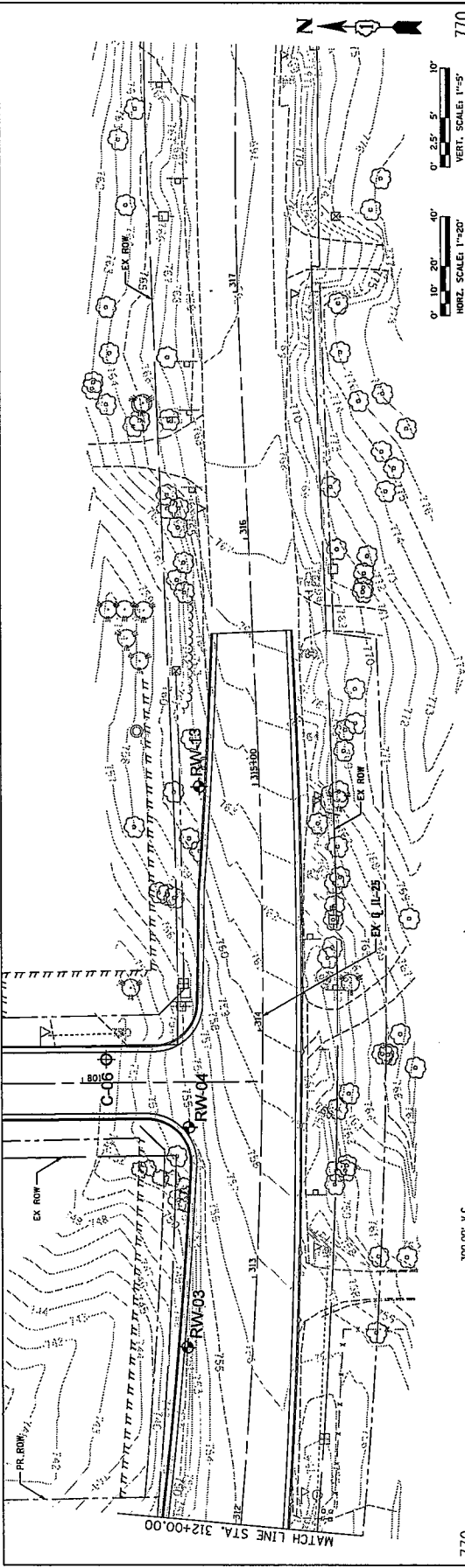
FILE NAME: 9/22/01
USER NAME: JJP
JOB DATE: 9/22/01

Geo. Inc.
Geotechnical Engineering
2001 North Lincoln Street
Chicago, IL 60614



FILE NAME	306-950	307+00	308-00	309+00	310+00	311+00	312+00
DESIGNED BY	REC	REVISED	REVISED	REVISED	REVISED	REVISED	REVISED
DRAWN BY	JPC	REVISED	REVISED	REVISED	REVISED	REVISED	REVISED
CHECKED BY	ALP	REVISED	REVISED	REVISED	REVISED	REVISED	REVISED
DATE	9/27/2011	REVISED	REVISED	REVISED	REVISED	REVISED	REVISED

STATE OF ILLINOIS	306+00	307+00	308+00	309+00	310+00	311+00	312+00
DEPARTMENT OF TRANSPORTATION	740.5	740.5	740.5	740.5	740.5	740.5	740.5
PROJECT NO.	04-00092-00-08	04-00092-00-08	04-00092-00-08	04-00092-00-08	04-00092-00-08	04-00092-00-08	04-00092-00-08
SECTION	IL Route 25 & I. Route 311	IL Route 25 & I. Route 311	IL Route 25 & I. Route 311	IL Route 25 & I. Route 311	IL Route 25 & I. Route 311	IL Route 25 & I. Route 311	IL Route 25 & I. Route 311
CONTRACT NO.	04-00092-00-08	04-00092-00-08	04-00092-00-08	04-00092-00-08	04-00092-00-08	04-00092-00-08	04-00092-00-08
DATE	9/27/2011	9/27/2011	9/27/2011	9/27/2011	9/27/2011	9/27/2011	9/27/2011



FILE NAME	DESIGNED BY	REVISION	DATE
RED_GATE_OVER_FOX_RIVER
USER NAME
POST DATE

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

RED GATE ROAD OVER THE FOX RIVER
SOIL BORING PLAN & PROFILE

SCALE: H 1"=20', V 1"=5'

SHEET NO. 6 OF 9 SHEETS

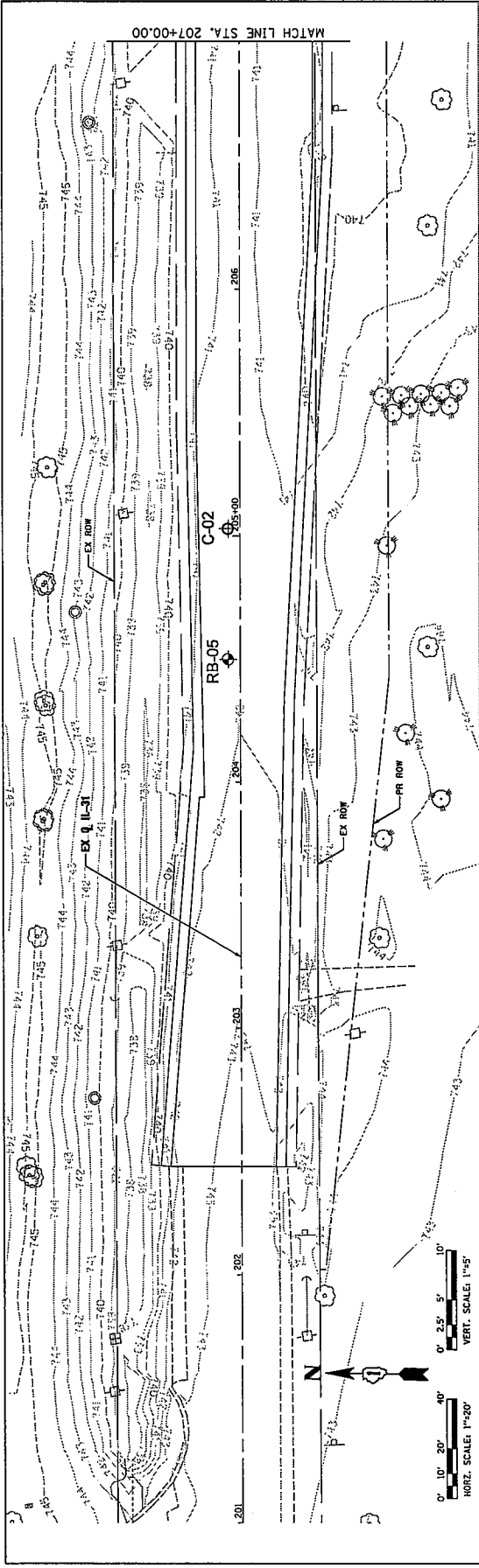
312+00 TO STA. 318+00

CONTRACT NO. 04-0002-00-R

FL ROUTE 25 & R. ROUTE 311

CONTRACT NO. 04-0002-00-R

325



STATION	740.00	740.50	741.00	741.50	742.00	742.50	743.00	743.50	744.00	744.50	745.00	745.50	746.00	746.50	747.00	747.50	748.00	748.50	749.00	749.50	750.00	750.50	751.00	751.50	752.00	752.50	753.00	753.50	754.00	754.50	755.00	755.50	756.00	756.50	757.00	757.50	758.00	758.50	759.00	759.50	760.00
740.00	740.50	741.00	741.50	742.00	742.50	743.00	743.50	744.00	744.50	745.00	745.50	746.00	746.50	747.00	747.50	748.00	748.50	749.00	749.50	750.00	750.50	751.00	751.50	752.00	752.50	753.00	753.50	754.00	754.50	755.00	755.50	756.00	756.50	757.00	757.50	758.00	758.50	759.00	759.50	760.00	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

RED GATE ROAD OVER THE FOX RIVER
SOIL BORING PLAN & PROFILE

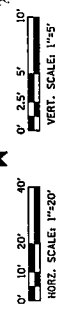
SCALE: H=1"=20', V=1"=5' SHEET NO. 7 OF 3 SHEETS STA. 204+00 TO STA. 207+00

FILE NO. 04-00092-00-0R COUNTY KANE
PROJECT NO. ILL. ROUTE 25 & N. ROUTE JH CONTRACT NO. ILL. ROUTE 25 BRIDGE

DESIGNED BY: []
DRAWN BY: []
CHECKED BY: []
DATE: 9/27/2011

REVISIONS:

NO.	DATE	BY	DESCRIPTION

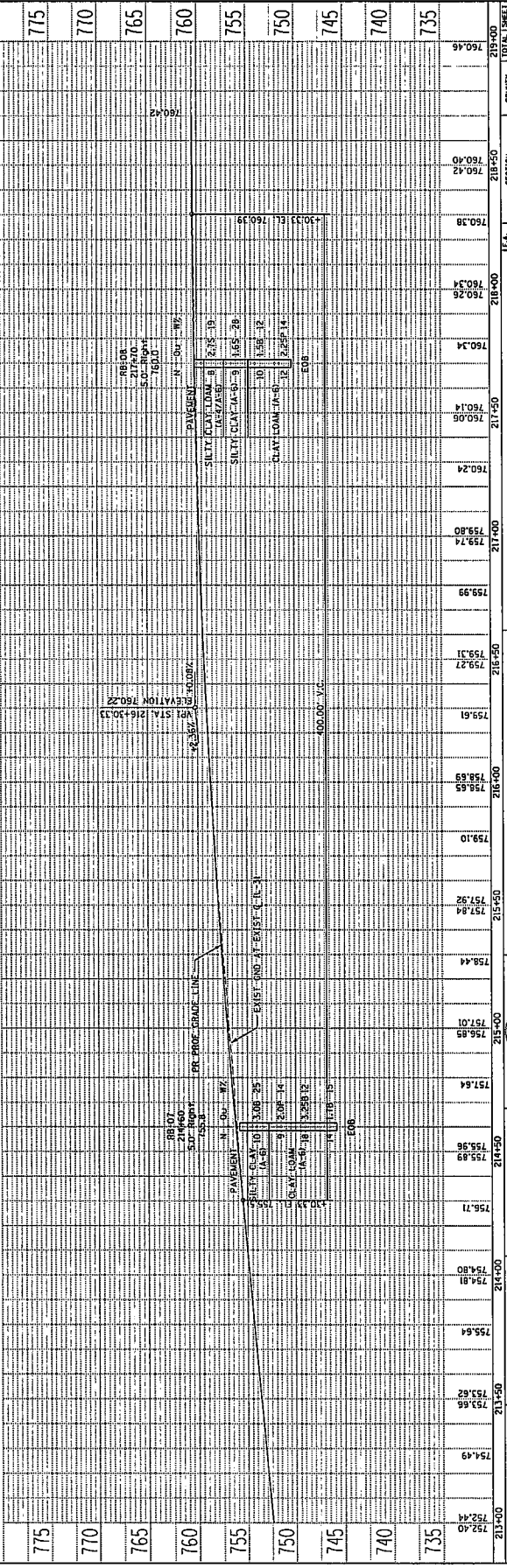
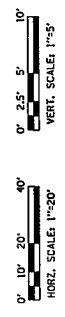
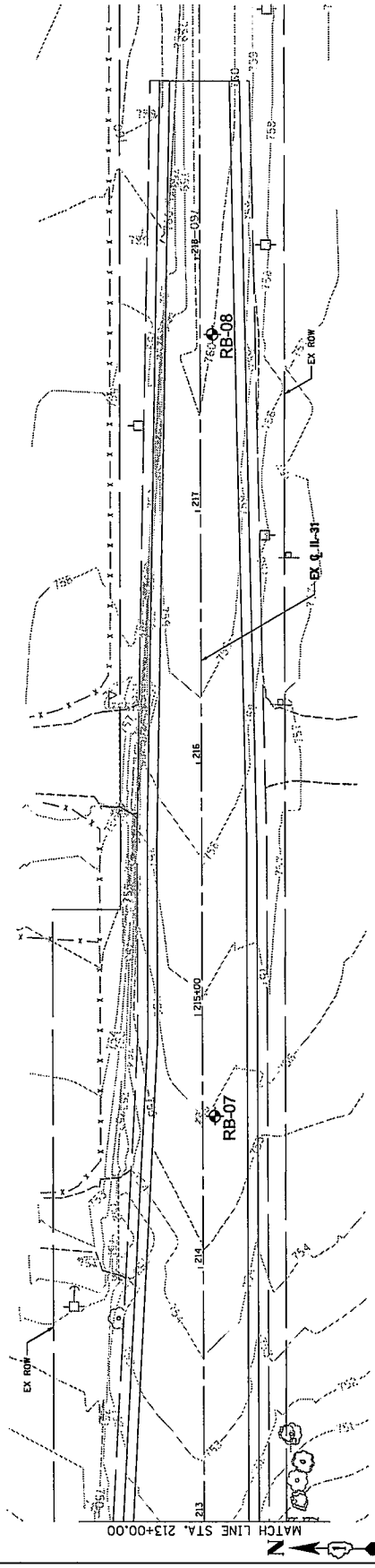


PLAN

NO.	DATE	BY	DESCRIPTION

PROFILE

NO.	DATE	BY	DESCRIPTION



STATION	ELEVATION	REVISION	DATE	BY	CHKD	DATE	BY	CHKD
213+00	752.44	DESIGNED	9/22/2011	RJC	RJC			
214+00	754.81	REVISED						
215+50	757.84	REVISED						
216+00	759.10	REVISED						
217+50	759.27	REVISED						
218+00	760.26	REVISED						
219+00	760.46	REVISED						

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

RED GATE ROAD OVER THE FOX RIVER
SOIL BORING PLAN & PROFILE

DATE	SECTION	COUNTY	SHEET
9/22/2011	04-00032-00-8R	ILLINOIS	1

PROJECT NO. 11-007, V 1-57 SHEET NO. 1 OF 3 SHEETS STA. 213+00 TO STA. 219+00
SCALE: HORIZ. 1"=20' VERT. 1"=5'

Geo. Savaris, Inc.
INCORPORATED
1100 W. MONROE ST.
CHICAGO, IL 60606

NO.	DATE	DESCRIPTION
1		ISSUED FOR PERMIT
2		ISSUED FOR CONSTRUCTION
3		ISSUED FOR AS-BUILT

NO.	DATE	DESCRIPTION
1		ISSUED FOR PERMIT
2		ISSUED FOR CONSTRUCTION
3		ISSUED FOR AS-BUILT

328

APPENDIX C
SOIL BORING LOGS



SOIL BORING LOG

PAGE 1 of 1
 DATE 6/8/2011
 LOGGED BY MD
 GSI JOB No. 10191

ROUTE IL. Rte. 25 & IL. Rte. 31 DESCRIPTION Red Gate Road Over The Fox River
 SECTION 04-00092-00-BR LOCATION SEC. 15, TWP. 40 N., RNG. 8 E., 3rd P.M., St. Charles Township
 COUNTY Kane DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE CME Automatic

STRUCT. NO. ---
 Station ---
 BORING NO. **RW-05**
 Station 304+25 Il. Route 25
 Offset 7.0' Left
 Ground Surface Elev. 731.2

D E P T H (ft)	B L O W S (/6")	U C S (tsf)	M O I S T (%)	Surface Water Elev. <u>n/a</u> Stream Bed Elev. <u>n/a</u> Groundwater Elevation: First Encounter <u>Dry to 5.0' ▼</u> Upon Completion <u>n/a ▼</u> After _____ Hrs. <u>▼</u>	D E P T H (ft)	B L O W S (/6")	U C S (tsf)	M O I S T (%)
-----------------------------------	------------------------------------	--------------------------	----------------------------------	--	-----------------------------------	------------------------------------	--------------------------	----------------------------------

7.0" ASPHALT, 6.0" CONCRETE				CLAY LOAM-gray-stiff (A-6)				
	730.1							710.7
		3	119	SILTY CLAY LOAM-brown-medium dense (A-4)		7		
		5				9		
		6	4.9B 12			10	4.5P	11
								708.2
		4	124	SILT-brown-medium dense (A-4)		11		
		8	6.3S@			14		
		-5	13 14.1%			18	NP	22
								706.2
CLAY LOAM-brown-stiff to hard (A-6)				End Of Boring @ -25.0' Hollow Stem Augers To -5.0' Rotary Drilling To Completion CME Automatic Hammer 5.0' Of 4.0"Ø Casing Used				
		7	120					
		11						
		14	3.2B 13					
		7	121					
		10						
		-10	11 2.9B 13			-30		
		6	118					
		9						
		13	2.7B 14					
		4	122					
		5						
		-15	7 1.75B 12			-35		
		3	123					
		5						
		7	1.8B 12					
								713.2
CLAY LOAM-gray-stiff (A-6)								
		5						
		7						
		-20	9 1.5P 11			-40		

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample VS-Vane Shear Test
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
 NR-No Recovery PS-Pushed Spoon



SOIL BORING LOG

PAGE 1 of 1
DATE 6/13/2011
LOGGED BY RT
GSI JOB No. 10191

ROUTE IL. Rte. 25 & IL. Rte. 31 DESCRIPTION Red Gate Road Over The Fox River
SECTION 04-00092-00-BR LOCATION SEC. 15, TWP. 40 N., RNG. 8 E., 3rd P.M., St. Charles Township
COUNTY Kane DRILLING METHOD Hand Auger HAMMER TYPE CME Automatic

STRUCT. NO. ---
Station ---
BORING NO. **RW-05A**
Station 304+25 IL. Route 25
Offset 27.0' Left
Ground Surface Elev. 735.0

DEPTH (ft)	BLOW S (/6")	UCS Qu (tsf)	MOIST T (%)	Surface Water Elev.	DEPTH (ft)	BLOW S (/6")	UCS Qu (tsf)	MOIST T (%)
				<u>n/a</u>				
				<u>n/a</u>				
				<u>n/a</u>				
				Groundwater Elevation:				
				First Encounter <u>Dry</u> ▼				
				Upon Completion <u>Dry</u> ▼				
				After _____ Hrs. _____ ▼				

		AS	-	17				
CLAY LOAM—brown (A-6)								
		AS	-	12				
	<i>731.5</i>	AS	-	13				
Auger Refusal @ -3.5' End Of Boring Hand Auger								
	-5				-25			
	-10				-30			
	-15				-35			
	-20				-40			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample VS=Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR-No Recovery PS-Pushed Spoon



SOIL BORING LOG

PAGE 1 of 1
 DATE 6/8/2011
 LOGGED BY MD
 GSI JOB No. 10191

ROUTE IL. Rte. 25 & IL. Rte. 31 DESCRIPTION Red Gate Road Over The Fox River
 SECTION 04-00092-00-BR LOCATION SEC. 15, TWP. 40 N., RNG. 8 E., 3rd P.M., St. Charles Township
 COUNTY Kane DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE CME Automatic

STRUCT. NO. ---
 Station ---
 BORING NO. **RW-06**
 Station 305+60 Il. Route 25
 Offset 7.0' Left
 Ground Surface Elev. 738.2

DEPTH (ft)	BLOW S (/6")	UCS Qu (tsf)	MOIST T (%)	Surface Water Elev.	DEPTH (ft)	BLOW S (/6")	UCS Qu (tsf)	MOIST T (%)
				<u>n/a</u>				
				Stream Bed Elev.				
				<u>n/a</u>				
				Groundwater Elevation:				
				First Encounter				
				<u>Dry to 5.0'</u>				
				Upon Completion				
				<u>n/a</u>				
				After _____ Hrs.				
				<u>---</u>				

6.0" ASPHALT, 7.0" CONCRETE									
	737.1								
		2		122		3		123	
		3				5			
		4	2.5B	12		6	1.1B	12	
		3		121		3		125	
		6				5			
		-5	7	2.3B	12	713.2 -25	5	1.0B	12
		3		120					
		5							
		10	1.5B	13					
CLAY LOAM—brown— stiff to very stiff (A-6)									
		5		119					
		8							
		-10	12	1.3B	14	-30			
		5							
		9							
		11	2.75P	19					
		3		119					
		5							
Sand seams from -13.5' to -15.0'.		-15	7	1.5B	12	-35			
		3		123					
		6							
		8	1.1B	13					
		3		121					
		6							
		-20	9	1.0B	13	-40			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B—Bulge, S—Shear, P—Penetrometer) ST—Shelby Tube Sample VS—Vane Shear Test
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
 NR—No Recovery PS—Pushed Spoon



SOIL BORING LOG

ROUTE IL. Rte. 25 & IL. Rte. 31 DESCRIPTION Red Gate Road Over The Fox River
 SECTION 04-00092-00-BR LOCATION SEC. 15, TWP. 40 N., RNG. 8 E., 3rd P.M., St. Charles Township
 COUNTY Kane DRILLING METHOD Hollow Stem Augers HAMMER TYPE CME Automatic

STRUCT. NO. <u>---</u> Station <u>---</u>	DEPTH (ft)	BLOW COUNT (/6")	UCS Qu (tsf)	MOIST CONTENT (%)	Surface Water Elev. <u>n/a</u>		DEPTH (ft)	BLOW COUNT (/6")	UCS Qu (tsf)	MOIST CONTENT (%)
					Stream Bed Elev. <u>n/a</u>	Groundwater Elevation:				
BORING NO. RW-07 Station <u>307+15 Il. Route 25</u> Offset <u>7.0' Left</u> Ground Surface Elev. <u>744.9</u>										
6.5" ASPHALT, 6.5" CONCRETE	743.8									
	5							5		122
SAND & GRAVEL—brown— medium dense (A-1) Fill	741.9							8		
	7							10	3.0B	12
	8	NP	4							
	3			125				6		122
	5							9		
	-5	6	1.9B	12			719.9	-25	11	3.4B 12
	3			123						
	5									
	8	1.75B	12							
CLAY LOAM—brown— stiff to very stiff (A-6)										
	4			122						
	8									
	-10	9	2.4B	13				-30		
	5			124						
	7									
	9	2.4B	13							
	5			123						
	8									
	-15	11	2.25B	12				-35		
	6									
	8									
	10	3.25P	12							
	8			121						
	11									
	-20	15	3.1B	12				-40		

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST=Shelby Tube Sample VS=Vane Shear Test
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
 NR=No Recovery PS=Pushed Spoon



SOIL BORING LOG

PAGE 1 of 1
 DATE 6/9/2011
 LOGGED BY MD
 GSI JOB No. 10191

ROUTE IL. Rte. 25 & IL. Rte. 31 DESCRIPTION Red Gate Road Over The Fox River
 SECTION 04-00092-00-BR LOCATION SEC. 15, TWP. 40 N., RNG. 8 E., 3rd P.M., St. Charles Township
 COUNTY Kane DRILLING METHOD Hollow Stem Auger HAMMER TYPE CME Automatic

STRUCT. NO. ---
 Station ---
 BORING NO. **RW-08**
 Station 308+40 Il. Route 25
 Offset 7.0' Left
 Ground Surface Elev. 750.1

DEPTH (ft)	BLOW S (/6")	UCS (tsf)	MOIST (%)	Surface Water Elev. <u>n/a</u>	Stream Bed Elev. <u>n/a</u>	DEPTH (ft)	BLOW S (/6")	UCS (tsf)	MOIST (%)
------------	--------------	-----------	-----------	--------------------------------	-----------------------------	------------	--------------	-----------	-----------

7.0" ASPHALT, 8.0" CONCRETE										
	748.8									
SAND & GRAVEL—brown—loose (Fill)	748.1	2					4		120	
		3	NP		CLAY LOAM—brown—stiff to very stiff (A-6)		5			
		5	1.25P	10			6	1.0B	13	
CLAY LOAM—brown—stiff to hard (A-6)		6		125			3			
		9					5			
		-5	13	4.9B	10	725.1	-25	5	1.0P	13
					End Of Boring @ -25.0'					
					Hollow Stem Augers					
					CME Automatic Hammer					
SILT—brown—loose (A-4)		3								
		3								
		3	NP	18						
	742.1									
		2		124						
		3								
		-10	7	1.9B	13		-30			
CLAY LOAM—brown—stiff to very stiff (A-6)		3								
		5								
		5	2.0P	13						
		2		121						
		3								
		-15	5	1.5B	13		-35			
		3		123						
		5								
		5	1.5B	13						
		3		118						
		5								
		-20	7	1.2B	13		-40			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B—Bulge, S—Shear, P—Penetrometer) ST—Shelby Tube Sample VS—Vane Shear Test
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
 NR—No Recovery PS—Pushed Spoon



SOIL BORING LOG

PAGE 1 of 1
 DATE 6/13/2011
 LOGGED BY RT
 GSI JOB No. 10191

ROUTE IL. Rte. 25 & IL. Rte. 31 DESCRIPTION Red Gate Road Over The Fox River
 SECTION 04-00092-00-BR LOCATION SEC. 15, TWP. 40 N., RNG. 8 E., 3rd P.M., St. Charles Township
 COUNTY Kane DRILLING METHOD Hand Auger HAMMER TYPE CME Automatic

STRUCT. NO. ---
 Station ---
 BORING NO. **RW-08A**
 Station 308+40 IL. Route 25
 Offset 27.0' Left
 Ground Surface Elev. 753.5

	D E P T H	B L O W S	U C S Qu	M O I S T	Surface Water Elev. <u>n/a</u>	D E P T H	B L O W S	U C S Qu	M O I S T
	(ft)	(/6")	(tsf)	(%)	Stream Bed Elev. <u>n/a</u>				
					Groundwater Elevation:				
					First Encounter <u>Dry</u> ▼				
					Upon Completion <u>Dry</u> ▼				
					After _____ Hrs. _____ ▼				

8.0" TOPSOIL-black	752.8								
		AS	-	34					
CLAY LOAM-brown (A-6)	751.0								
		AS	-	16					
SILTY LOAM-brown (A-4)	750.0								
		AS	-	20					
CLAY LOAM-brown (A-6)	748.0								
		AS	-	12					
Auger Refusal @ -5.5'									
End Of Boring									
Hand Auger									
	-10								
	-15								
	-20								
	-25								
	-30								
	-35								
	-40								

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample VS=Vane Shear Test
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
 NR-No Recovery PS-Pushed Spoon



SOIL BORING LOG

ROUTE IL. Rte. 25 & IL. Rte. 31 DESCRIPTION Red Gate Road Over The Fox River

SECTION 04-00092-00-BR LOCATION SEC. 15, TWP. 40 N., RNG. 8 E., 3rd P.M., St. Charles Township

COUNTY Kane DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE CME Automatic

STRUCT. NO. ---
Station ---

BORING NO. **RW-13**
Station 315+00 Il. Route 25
Offset 25.0' Left
Ground Surface Elev. 761.9

DEPTH (ft)	BLOW S (/6")	UCS Qu (tsf)	MOIST (%)	Surface Water Elev. <u>n/a</u>	Stream Bed Elev. <u>n/a</u>	DEPTH (ft)	BLOW S (/6")	UCS Qu (tsf)	MOIST (%)
				Groundwater Elevation:					
				First Encounter <u>752.9</u>	▼				
				Upon Completion <u>n/a</u>	▼				
				After _____ Hrs. _____	▼				

7.0" ASPHALT, 7.0" CONCRETE									
	760.7								
		2	101				5		125
		2					8		
		3	1.6B 21	CLAY LOAM-gray-very stiff (A-6)			12	2.5B	13
		2					5		126
		2					7		
		-5	3 0.25P 17			736.9	-25	9 2.5B	13
CLAY LOAM-brown-soft to stiff (A-6)				End Of Boring @ -25.0'					
		2	119	Hollow Stem Augers To -10.0'					
		2		Rotary Drilling To Completion					
		2	0.25B 15	CME Automatic Hammer					
				10.0' Of 4.0"ø Casing Used					
		3	116						
		4							
		-10	4 1.8B 15				-30		
		4	114						
		5							
		6	1.9B 18						
	748.9								
		7							
SAND-brown-medium dense (A-3)		10							
		-15	13 NP 20				-35		
	746.4								
		10							
SILTY LOAM-brown-medium dense (A-4)		12							
		15	4.5P 13						
	743.9								
		10							
CLAY LOAM-gray-very stiff (A-6)		12	125						
		14	3.2B 13				-40		

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample VS-Vane Shear Test
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
 NR-No Recovery PS-Pushed Spoon



Bureau of Water • 1021 North Grand Avenue East • P.O. Box 19276 • Springfield • Illinois • 62794-9276

Division of Water Pollution Control Notice of Intent (NOI) for General Permit to Discharge Storm Water Associated with Construction Site Activities

This fillable form may be completed online, a copy saved locally, printed and signed before it is submitted to the Permit Section at the above address.

For Office Use Only

OWNER INFORMATION

Permit No. ILR10 _____

Company/Owner Name: City of St. Charles
Mailing Address: 2 E. Main Street Phone: 630-377-4405
City: St. Charles State: IL Zip: 60174 Fax: 630-513-7442
Contact Person: Mark Koenen E-mail: mkoenen@stcharlesil.gov
Owner Type (select one) City

CONTRACTOR INFORMATION

MS4 Community: Yes No

Contractor Name: _____
Mailing Address: _____ Phone: _____
City: _____ State: _____ Zip: _____ Fax: _____

CONSTRUCTION SITE INFORMATION

Select One: New Change of information for: ILR10 _____
Project Name: Red Gate Road and Bridge Corridor County: Kane
Street Address: IL31 at Red Gate Road City: St. Charles IL Zip: 60174
Latitude: 41 57 00 Longitude: 88 19 12 15 40N 8E
(Deg) (Min) (Sec) (Deg) (Min) (Sec) Section Township Range
Approximate Construction Start Date Mar 12, 2012 Approximate Construction End Date May 30, 2013

Total size of construction site in acres: 18

If less than 1 acre, is the site part of a larger common plan of development?
 Yes No

Fee Schedule for Construction Sites: Less than 5 acres - \$250 5 or more acres - \$750

STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

Has the SWPPP been submitted to the Agency? Yes No

(Submit SWPPP electronically to: epa.constilr10swppp@illinois.gov)

Location of SWPPP for viewing: Address: _____ City: _____
SWPPP contact information: _____ Inspector qualifications: _____
Contact Name: _____
Phone: _____ Fax: _____ E-mail: _____
Project inspector, if different from above _____ Inspector qualifications: _____
Inspector's Name: _____
Phone: _____ Fax: _____ E-mail: _____

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TYPE OF CONSTRUCTION (select one)

Construction Type Transportation

SIC Code: _____

Type a detailed description of the project:

Construction of 0.7 miles of roadway, new Fox River Crossing Bridge with pedestrian bridge, multiuse path, boardwalk, detention ponds, utilities, lighting, signals and intersection improvements.

HISTORIC PRESERVATION AND ENDANGERED SPECIES COMPLIANCE

Has the project been submitted to the following state agencies to satisfy applicable requirements for compliance with Illinois law on:

Historic Preservation Agency Yes No

Endangered Species Yes No

RECEIVING WATER INFORMATION

Does your storm water discharge directly to: Waters of the State or Storm Sewer

Owner of storm sewer system: City of St. Charles and IDOT

Name of closest receiving water body to which you discharge: Fox River

Mail completed form to: Illinois Environmental Protection Agency
Division of Water Pollution Control
Attn: Permit Section
Post Office Box 19276
Springfield, Illinois 62794-9276
or call (217) 782-0610
FAX: (217) 782-9891

Or submit electronically to: epa.constilr10swppp@illinois.gov

I certify under penalty of law that this document and all attachments were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage this system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. In addition, I certify that the provisions of the permit, including the development and implementation of a storm water pollution prevention plan and a monitoring program plan, will be complied with.

Any person who knowingly makes a false, fictitious, or fraudulent material statement, orally or in writing, to the Illinois EPA commits a Class 4 felony. A second or subsequent offense after conviction is a Class 3 felony. (415 ILCS 5/44(h))

Owner Signature:

Date:

Printed Name:

Title:

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INSTRUCTIONS FOR COMPLETION OF CONSTRUCTION ACTIVITY NOTICE OF INTENT (NOI) FORM

Submit original, electronic or facsimile copies. Facsimile and/or electronic copies should be followed-up with submission of an original signature copy as soon as possible. Please write "copy" under the "For Office Use Only" box in the upper right hand corner of the first page.

This fillable form may be completed online, a copy saved locally, printed and signed before it is submitted to the Permit Section at:

Illinois Environmental Protection Agency
 Division of Water Pollution Control
 Permit Section
 Post Office Box 19276
 Springfield, Illinois 62794-9276
 or call (217) 782-0610
 FAX: (217) 782-9891

Or submit electronically to: epa.constilr10swppp@illinois.gov

Reports must be typed or printed legibly and signed.

Any facility that is not presently covered by the General NPDES Permit for Storm Water Discharges From Construction Site Activities is considered a new facility.

If this is a change in your facility information, renewal, etc., please fill in your permit number on the appropriate line, changes of information or permit renewal notifications do not require a fee.

NOTE: FACILITY LOCATION IS NOT NECESSARILY THE FACILITY MAILING ADDRESS, BUT SHOULD DESCRIBE WHERE THE FACILITY IS LOCATED.

Use the formats given in the following examples for correct form completion.

	Example	Format
Section	12	1 or 2 numerical digits
Township	12N	1 or 2 numerical digits followed by "N" or "S"
Range	12W	1 or 2 numerical digits followed by "E" or "W"

For the Name of Closest Receiving Waters, do not use terms such as ditch or channel. For unnamed tributaries, use terms which include at least a named main tributary such as "Unnamed Tributary to Sugar Creek to Sangamon River."

Submission of initial fee and an electronic submission of Storm Water Pollution Prevention Plan (SWPPP) for Initial Permit prior to the Notice of Intent being considered complete for coverage by the ILR10 General Permits. Please make checks payable to: Illinois EPA at the above address.

Construction sites with less than 5 acres of land disturbance - fee is \$250.

Construction sites with 5 or more acres of land disturbance - fee is \$750.

SWPPP should be submitted electronically to: epa.constilr10swppp@illinois.gov When submitting electronically, use Project Name and City as indicated on NOI form.

State of Illinois
Department of Transportation
Bureau of Local Roads and Streets

SPECIAL PROVISION
FOR
COOPERATION WITH UTILITIES

Effective: January 1, 1999
Revised: January 1, 2007

All references to Sections or Articles in this specification shall be construed to mean specific Section or Article of the Standard Specifications for Road and Bridge Construction, adopted by the Department of Transportation.

Replace Article 105.07 of the Standard Specifications with the following:

"105.07 Cooperation with Utilities. The adjustment of utilities consists of the relocation, removal, replacement, rearrangements, reconstruction, improvement, disconnection, connection, shifting, new installation or altering of an existing utility facility in any manner.

When the plans or special provisions include information pertaining to the location of underground utility facilities, such information represents only the opinion of the Department as to the location of such utilities and is only included for the convenience of the bidder. The Department assumes no responsibility in respect to the sufficiency or the accuracy of the information shown on the plans relative to the location of the underground utility facilities.

Utilities which are to be adjusted shall be adjusted by the utility owner or the owner's representative or by the Contractor as a contract item. Generally, arrangements for adjusting existing utilities will be made by the Department prior to project construction; however, utilities will not necessarily be adjusted in advance of project construction and, in some cases, utilities will not be removed from the proposed construction limits. When utility adjustments must be performed in conjunction with construction, the utility adjustment work will be shown on the plans and/or covered by Special Provisions.

When the Contractor discovers a utility has not been adjusted by the owner or the owner's representative as indicated in the contract documents, or the utility is not shown on the plans or described in the Special Provisions as to be adjusted in conjunction with construction, the Contractor shall not interfere with said utility, and shall take proper precautions to prevent damage or interruption of the utility and shall promptly notify the Engineer of the nature and location of said utility.

All necessary adjustments, as determined by the Engineer, of utilities not shown on the plans or not identified by markers, will be made at no cost to the Contractor except traffic structures, light poles, etc., that are normally located within the proposed construction limits as hereinafter defined will not be adjusted unless required by the proposed improvement.

(a) Limits of Proposed Construction for Utilities Paralleling the Roadway. For the purpose of this Article, limits of proposed construction for utilities extending in the same longitudinal direction as the roadway, shall be defined as follows:

(1) The horizontal limits shall be a vertical plane, outside of, parallel to, and 600 mm (2 ft) distant at right angles from the plan or revised slope limits.

In cases where the limits of excavation for structures are not shown on the plans, the horizontal limits shall be a vertical plane 1.2 m (4 ft) outside the edges of structure footings or the structure where no footings are required.

(2) The upper vertical limits shall be the regulations governing the roadbed clearance for the specific utility involved.

(3) The lower vertical limits shall be the top of the utility at the depth below the proposed grade as prescribed by the governing agency or the limits of excavation, whichever is less.

(b) Limits of Proposed Construction for Utilities Crossing the Roadway. For the purpose of this Article, limits of proposed construction for utilities crossing the roadway in a generally transverse direction shall be defined as follows:

(1) Utilities crossing excavations for structures that are normally made by trenching such as sewers, underdrains, etc. and all minor structures such as manholes, inlets, foundations for signs, foundations for traffic signals, etc., the limits shall be the space to be occupied by the proposed permanent construction unless otherwise required by the regulations governing the specific utility involved.

(2) For utilities crossing the proposed site of major structures such as bridges, sign trusses, etc., the limits shall be as defined above for utilities extending in the same general direction as the roadway.

The Contractor may make arrangements for adjustment of utilities outside of the limits of proposed construction provided the Contractor furnishes the Department with a signed agreement with the utility owner covering the adjustments to be made. The cost of any adjustments made outside the limits of proposed construction shall be the responsibility of the Contractor unless otherwise provided.

The Contractor shall request all utility owners to field locate their facilities according to Article 107.31. The Engineer may make the request for location from the utility after receipt of notice from the Contractor. On request, the Engineer will make an inspection to verify that the utility company has field located its facilities, but will not assume responsibility for the accuracy of such work. The Contractor shall be responsible for maintaining the excavations or markers provided by the utility owners. This field location procedure may be waived if the utility owner has stated in writing to the Department it is satisfied the construction plans are sufficiently accurate. If the utility owner does not submit such statement to the Department, and they do not field locate their facilities in both horizontal and vertical alignment, the Engineer will authorize the Contractor in writing to proceed to locate the facilities in the most economical and reasonable manner, subject to the approval of the Engineer, and be paid according to Article 109.04.

The Contractor shall coordinate with any planned utility adjustment or new installation and the Contractor shall take all precautions to prevent disturbance or damage to utility facilities. Any failure on the part of the utility owner, or their representative, to proceed with any planned utility adjustment or new installation shall be reported promptly by the Contractor to the Engineer orally and in writing.

The Contractor shall take all necessary precautions for the protection of the utility facilities. The Contractor shall be responsible for any damage or destruction of utility facilities resulting from neglect, misconduct, or omission in the Contractor's manner or method of execution or nonexecution of the work, or caused by defective work or the use of unsatisfactory materials. Whenever any damage or destruction of a utility facility occurs as a result of work performed by the Contractor, the utility company will be immediately notified. The utility company will make arrangements to restore such facility to a condition equal to that existing before any such damage or destruction was done.

It is understood and agreed that the Contractor has considered in the bid all of the permanent and temporary utilities in their present and/or adjusted positions.

No additional compensation will be allowed for any delays, inconvenience, or damage sustained by the Contractor due to any interference from the said utility facilities or the operation of relocating the said utility facilities.

State of Illinois
Department of Transportation
Bureau of Local Roads and Streets

SPECIAL PROVISION
FOR
INSURANCE

Effective: February 1, 2007
Revised: August 1, 2007

All references to Sections or Articles in this specification shall be construed to mean specific Section or Article of the Standard Specifications for Road and Bridge Construction, adopted by the Department of Transportation.

The Contractor shall name the following entities as additional insured under the Contractor's general liability insurance policy in accordance with Article 107.27:

City of St. Charles

The entities listed above and their officers, employees, and agents shall be indemnified and held harmless in accordance with Article 107.26.

BITUMINOUS MATERIALS COST ADJUSTMENTS (BDE) (RETURN FORM WITH BID)

Effective: November 2, 2006

Revised: January 1, 2012

Description. Bituminous material cost adjustments will be made to provide additional compensation to the Contractor, or credit to the Department, for fluctuations in the cost of bituminous materials when optioned by the Contractor. The adjustments shall apply to permanent and temporary hot-mix asphalt (HMA) mixtures, bituminous surface treatments (cover and seal coats), and preventative maintenance type surface treatments. The adjustments shall not apply to bituminous prime coats, tack coats, crack filling/sealing, or joint filling/sealing.

The bidder shall indicate on the attached form whether or not this special provision will be part of the contract and submit the completed form with his/her bid. Failure to submit the form, or failure to fill out the form completely, shall make this contract exempt of bituminous materials cost adjustments.

Method of Adjustment. Bituminous materials cost adjustments will be computed as follows.

$$CA = (BPI_P - BPI_L) \times (\%AC_V / 100) \times Q$$

- Where: CA = Cost Adjustment, \$.
- BPI_P = Bituminous Price Index, as published by the Department for the month the work is performed, \$/ton (\$/metric ton).
- BPI_L = Bituminous Price Index, as published by the Department for the month prior to the letting, \$/ton (\$/metric ton).
- %AC_V = Percent of virgin Asphalt Cement in the Quantity being adjusted. For HMA mixtures, the % AC_V will be determined from the adjusted job mix formula. For bituminous materials applied, a performance graded or cutback asphalt will be considered to be 100% AC_V and undiluted emulsified asphalt will be considered to be 65% AC_V.
- Q = Authorized construction Quantity, tons (metric tons) (see below).

For HMA mixtures measured in square yards: $Q, \text{ tons} = A \times D \times (G_{mb} \times 46.8) / 2000$. For HMA mixtures measured in square meters: $Q, \text{ metric tons} = A \times D \times (G_{mb} \times 24.99) / 1000$. When computing adjustments for full-depth HMA pavement, separate calculations will be made for the binder and surface courses to account for their different G_{mb} and % AC_V.

For bituminous materials measured in gallons: $Q, \text{ tons} = V \times 8.33 \text{ lb/gal} \times SG / 2000$
For bituminous materials measured in liters: $Q, \text{ metric tons} = V \times 1.0 \text{ kg/L} \times SG / 1000$

- Where: A = Area of the HMA mixture, sq yd (sq m).
D = Depth of the HMA mixture, in. (mm).
G_{mb} = Average bulk specific gravity of the mixture, from the approved mix design.
V = Volume of the bituminous material, gal (L).

SG = Specific Gravity of bituminous material as shown on the bill of lading.

Basis of Payment. Bituminous materials cost adjustments may be positive or negative but will only be made when there is a difference between the BPI_L and BPI_P in excess of five percent, as calculated by:

$$\text{Percent Difference} = \{(BPI_L - BPI_P) \div BPI_L\} \times 100$$

Bituminous materials cost adjustments will be calculated for each calendar month in which applicable bituminous material is placed; and will be paid or deducted when all other contract requirements for the work placed during the month are satisfied. The adjustments shall not apply during contract time subject to liquidated damages for completion of the entire contract.

Return With Bid

**ILLINOIS DEPARTMENT
OF TRANSPORTATION**

**OPTION FOR
BITUMINOUS MATERIALS COST ADJUSTMENTS**

The bidder shall submit this completed form with his/her bid. Failure to submit the form, or failure to fill out the form completely, shall make this contract exempt of bituminous materials cost adjustments. After award, this form, when submitted, shall become part of the contract.

Contract No.: _____

Company Name: _____

Contractor's Option:

Is your company opting to include this special provision as part of the contract?

Yes

No

Signature: _____ **Date:** _____

80173

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CONSTRUCTION AIR QUALITY – DIESEL RETROFIT (BDE)

Effective: June 1, 2010

The reduction of emissions of particulate matter (PM) for off-road equipment shall be accomplished by installing retrofit emission control devices. The term "equipment" refers to diesel fuel powered devices rated at 50 hp and above, to be used on the jobsite in excess of seven calendar days over the course of the construction period on the jobsite (including rental equipment).

Contractor and subcontractor diesel powered off-road equipment assigned to the contract shall be retrofitted using the phased in approach shown below. Equipment that is of a model year older than the year given for that equipment's respective horsepower range shall be retrofitted:

Effective Dates	Horsepower Range	Model Year
June 1, 2010 ^{1/}	600-749	2002
	750 and up	2006
June 1, 2011 ^{2/}	100-299	2003
	300-599	2001
	600-749	2002
	750 and up	2006
June 1, 2012 ^{2/}	50-99	2004
	100-299	2003
	300-599	2001
	600-749	2002
	750 and up	2006

1/ Effective dates apply to Contractor diesel powered off-road equipment assigned to the contract.

2/ Effective dates apply to Contractor and subcontractor diesel powered off-road equipment assigned to the contract.

The retrofit emission control devices shall achieve a minimum PM emission reduction of 50 percent and shall be:

- a) Included on the U.S. Environmental Protection Agency (USEPA) *Verified Retrofit Technology List* (<http://www.epa.gov/otag/retrofit/verif-list.htm>), or verified by the California Air Resources Board (CARB) (<http://www.arb.ca.gov/diesel/verde/verdev.htm>); or
- b) Retrofitted with a non-verified diesel retrofit emission control device if verified retrofit emission control devices are not available for equipment proposed to be used on the project, and if the Contractor has obtained a performance certification from the retrofit

device manufacturer that the emission control device provides a minimum PM emission reduction of 50 percent.

Note: Large cranes (Crawler mounted cranes) which are responsible for critical lift operations are exempt from installing retrofit emission control devices if such devices adversely affect equipment operation.

Diesel powered off-road equipment with engine ratings of 50 hp and above, which are unable to be retrofitted with verified emission control devices or if performance certifications are not available which will achieve a minimum 50 percent PM reduction, may be granted a waiver by the Department if documentation is provided showing good faith efforts were made by the Contractor to retrofit the equipment.

Construction shall not proceed until the Contractor submits a certified list of the diesel powered off-road equipment that will be used, and as necessary, retrofitted with emission control devices. The list(s) shall include (1) the equipment number, type, make, Contractor/rental company name; and (2) the emission control devices make, model, USEPA or CARB verification number, or performance certification from the retrofit device manufacturer. Equipment reported as fitted with emissions control devices shall be made available to the Engineer for visual inspection of the device installation, prior to being used on the jobsite.

The Contractor shall submit an updated list of retrofitted off-road construction equipment as retrofitted equipment changes or comes on to the jobsite. The addition or deletion of any diesel powered equipment shall be included on the updated list.

If any diesel powered off-road equipment is found to be in non-compliance with any portion of this special provision, the Engineer will issue the Contractor a diesel retrofit deficiency deduction.

Any costs associated with retrofitting any diesel powered off-road equipment with emission control devices shall be considered as included in the contract unit prices bid for the various items of work involved and no additional compensation will be allowed. The Contractor's compliance with this notice and any associated regulations shall not be grounds for a claim.

Diesel Retrofit Deficiency Deduction

When the Engineer determines that a diesel retrofit deficiency exists, a daily monetary deduction will be imposed for each calendar day or fraction thereof the deficiency continues to exist. The calendar day(s) will begin when the time period for correction is exceeded and end with the Engineer's written acceptance of the correction. The daily monetary deduction will be \$1,000.00 for each deficiency identified.

The deficiency will be based on lack of diesel retrofit emissions control.

If a Contractor accumulates three diesel retrofit deficiency deductions for the same piece of equipment in a contract period, the Contractor will be shutdown until the deficiency is corrected.

Such a shutdown will not be grounds for any extension of the contract time, waiver of penalties, or be grounds for any claim.

80261

CONSTRUCTION AIR QUALITY - DIESEL VEHICLE EMISSIONS CONTROL (BDE)

Effective: April 1, 2009

Revised: January 2, 2012

Diesel Vehicle Emissions Control. The reduction of construction air emissions shall be accomplished by using cleaner burning diesel fuel. The term "equipment" refers to any and all diesel fuel powered devices rated at 50 hp and above, to be used on the project site in excess of seven calendar days over the course of the construction period on the project site (including any "rental" equipment).

All equipment on the jobsite, with engine ratings of 50 hp and above, shall be required to: use Ultra Low Sulfur Diesel fuel (ULSD) exclusively (15 ppm sulfur content or less).

Diesel powered equipment in non-compliance will not be allowed to be used on the project site, and is also subject to a notice of non-compliance as outlined below.

The Contractor shall certify that only ULSD will be used in all jobsite equipment. The certification shall be presented to the Department prior to the commencement of the work.

If any diesel powered equipment is found to be in non-compliance with any portion of this specification, the Engineer will issue the Contractor a notice of non-compliance and identify an appropriate period of time, as outlined below under environmental deficiency deduction, in which to bring the equipment into compliance or remove it from the project site.

Any costs associated with bringing any diesel powered equipment into compliance with these diesel vehicle emissions controls shall be considered as included in the contract unit prices bid for the various items of work involved and no additional compensation will be allowed. The Contractor's compliance with this notice and any associated regulations shall also not be grounds for a claim.

Environmental Deficiency Deduction. When the Engineer is notified, or determines that an environmental control deficiency exists, he/she will notify the Contractor in writing, and direct the Contractor to correct the deficiency within a specified time period. The specified time-period, which begins upon Contractor notification, will be from 1/2 hour to 24 hours long, based on the urgency of the situation and the nature of the deficiency. The Engineer shall be the sole judge regarding the time period.

The deficiency will be based on lack of repair, maintenance and diesel vehicle emissions control.

If the Contractor fails to correct the deficiency within the specified time frame, a daily monetary deduction will be imposed for each calendar day or fraction thereof the deficiency continues to exist. The calendar day(s) will begin when the time period for correction is exceeded and end with the Engineer's written acceptance of the correction. The daily monetary deduction will be \$1,000.00 for each deficiency identified.

If a Contractor or subcontractor accumulates three environmental deficiency deductions in a contract period, the Contractor will be shutdown until the deficiency is corrected. Such a shutdown will not be grounds for any extension of contract time, waiver of penalties, or be grounds for any claim.

80237

CONSTRUCTION AIR QUALITY - IDLING RESTRICTIONS (BDE)

Effective: April 1, 2009

Idling Restrictions. The Contractor shall establish truck-staging areas for all diesel powered vehicles that are waiting to load or unload material at the jobsite. Staging areas shall be located where the diesel emissions from the equipment will have a minimum impact on adjacent sensitive receptors. The Department will review the selection of staging areas, whether within or outside the existing highway right-of-way, to avoid locations near sensitive areas or populations to the extent possible. Sensitive receptors include, but are not limited to, hospitals, schools, residences, motels, hotels, daycare facilities, elderly housing and convalescent facilities. Diesel powered engines shall also be located as far away as possible from fresh air intakes, air conditioners, and windows. The Engineer will approve staging areas before implementation.

Diesel powered vehicle operators may not cause or allow the motor vehicle, when it is not in motion, to idle for more than a total of 10 minutes within any 60 minute period, except under any of the following circumstances:

- 1) The motor vehicle has a gross vehicle weight rating of less than 8000 lb (3630 kg).
- 2) The motor vehicle idles while forced to remain motionless because of on-highway traffic, an official traffic control device or signal, or at the direction of a law enforcement official.
- 3) The motor vehicle idles when operating defrosters, heaters, air conditioners, or other equipment solely to prevent a safety or health emergency.
- 4) A police, fire, ambulance, public safety, other emergency or law enforcement motor vehicle, or any motor vehicle used in an emergency capacity, idles while in an emergency or training mode and not for the convenience of the vehicle operator.
- 5) The primary propulsion engine idles for maintenance, servicing, repairing, or diagnostic purposes if idling is necessary for such activity.
- 6) A motor vehicle idles as part of a government inspection to verify that all equipment is in good working order, provided idling is required as part of the inspection.
- 7) When idling of the motor vehicle is required to operate auxiliary equipment to accomplish the intended use of the vehicle (such as loading, unloading, mixing, or processing cargo; controlling cargo temperature; construction operations, lumbering operations; oil or gas well servicing; or farming operations), provided that this exemption does not apply when the vehicle is idling solely for cabin comfort or to operate non-essential equipment such as air conditioning, heating, microwave ovens, or televisions.
- 8) When the motor vehicle idles due to mechanical difficulties over which the operator has no control.
- 9) The outdoor temperature is less than 32 °F (0 °C) or greater than 80 °F (26 °C).

When the outdoor temperature is greater than or equal to 32 °F (0 °C) or less than or equal to 80 °F (26 °C), a person who operates a motor vehicle operating on diesel fuel shall not cause or allow the motor vehicle to idle for a period greater than 30 minutes in any 60 minute period while waiting to weigh, load, or unload cargo or freight, unless the vehicle is in a line of vehicles that regularly and periodically moves forward.

The above requirements do not prohibit the operation of an auxiliary power unit or generator set as an alternative to idling the main engine of a motor vehicle operating on diesel fuel.

Environmental Deficiency Deduction. When the Engineer is notified, or determines that an environmental control deficiency exists based on non-compliance with the idling restrictions, he/she will notify the Contractor, and direct the Contractor to correct the deficiency.

If the Contractor fails to correct the deficiency a monetary deduction will be imposed. The monetary deduction will be \$1,000.00 for each deficiency identified.

80239

DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION (BDE)

Effective: September 1, 2000

Revised: August 2, 2011

FEDERAL OBLIGATION. The Department of Transportation, as a recipient of federal financial assistance, is required to take all necessary and reasonable steps to ensure nondiscrimination in the award and administration of contracts. Consequently, the federal regulatory provisions of 49 CFR Part 26 apply to this contract concerning the utilization of disadvantaged business enterprises. For the purposes of this Special Provision, a disadvantaged business enterprise (DBE) means a business certified by the Department in accordance with the requirements of 49 CFR Part 26 and listed in the Illinois Unified Certification Program (IL UCP) DBE Directory.

STATE OBLIGATION. This Special Provision will also be used by the Department to satisfy the requirements of the Business Enterprise for Minorities, Females, and Persons with Disabilities Act, 30 ILCS 575. When this Special Provision is used to satisfy state law requirements on 100 percent state-funded contracts, the federal government has no involvement in such contracts (not a federal-aid contract) and no responsibility to oversee the implementation of this Special Provision by the Department on those contracts. DBE participation on 100 percent state-funded contracts will not be credited toward fulfilling the Department's annual overall DBE goal required by the US Department of Transportation to comply with the federal DBE program requirements.

CONTRACTOR ASSURANCE. The Contractor makes the following assurance and agrees to include the assurance in each subcontract that the Contractor signs with a subcontractor.

The Contractor, subrecipient, or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The Contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of contracts funded in whole or in part with federal or state funds. Failure by the Contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate.

OVERALL GOAL SET FOR THE DEPARTMENT. As a requirement of compliance with 49 CFR Part 26, the Department has set an overall goal for DBE participation in its federally assisted contracts. ~~That goal applies to all federal-aid funds the Department will expend in its federally~~ assisted contracts for the subject reporting fiscal year. The Department is required to make a good faith effort to achieve the overall goal. The dollar amount paid to all approved DBE companies performing work called for in this contract is eligible to be credited toward fulfillment of the Department's overall goal.

CONTRACT GOAL TO BE ACHIEVED BY THE CONTRACTOR. This contract includes a specific DBE utilization goal established by the Department. The goal has been included because the Department has determined that the work of this contract has subcontracting opportunities that may be suitable for performance by DBE companies. The determination is

based on an assessment of the type of work, the location of the work, and the availability of DBE companies to do a part of the work. The assessment indicates that, in the absence of unlawful discrimination, and in an arena of fair and open competition, DBE companies can be expected to perform 10.00% of the work. This percentage is set as the DBE participation goal for this contract. Consequently, in addition to the other award criteria established for this contract, the Department will only award this contract to a bidder who makes a good faith effort to meet this goal of DBE participation in the performance of the work. A bidder makes a good faith effort for award consideration if either of the following is done in accordance with the procedures set for in this Special Provision:

- (a) The bidder documents that enough DBE participation has been obtained to meet the goal: or
- (b) The bidder documents that a good faith effort has been made to meet the goal, even though the effort did not succeed in obtaining enough DBE participation to meet the goal.

DBE LOCATOR REFERENCES. Bidders shall consult the IL UCP DBE Directory as a reference source for DBE-certified companies. In addition, the Department maintains a letting and item specific DBE locator information system whereby DBE companies can register their interest in providing quotes on particular bid items advertised for letting. Information concerning DBE companies willing to quote work for particular contracts may be obtained by contacting the Department's Bureau of Small Business Enterprises at telephone number (217)785-4611, or by visiting the Department's website at www.dot.il.gov.

BIDDING PROCEDURES. Compliance with this Special Provision is a material bidding requirement. The failure of the bidder to comply will render the bid not responsive.

- (a) The bidder shall submit a Disadvantaged Business Utilization Plan on Department forms SBE 2025 and 2026 with the bid.
- (b) The Utilization Plan shall indicate that the bidder either has obtained sufficient DBE participation commitments to meet the contract goal or has not obtained enough DBE participation commitments in spite of a good faith effort to meet the goal. The Utilization Plan shall further provide the name, telephone number, and telefax number of a responsible official of the bidder designated for purposes of notification of plan approval or disapproval under the procedures of this Special Provision.
- (c) The Utilization Plan shall include a DBE Participation Commitment Statement, Department form SBE 2025, for each DBE proposed for the performance of work to achieve the contract goal. For bidding purposes, submission of the completed SBE 2025 forms, signed by the DBEs and faxed to the bidder will be acceptable as long as the original is available and provided upon request. All elements of information indicated on the said form shall be provided, including but not limited to the following:
 - (1) The names and addresses of DBE firms that will participate in the contract;

- (2) A description, including pay item numbers, of the work each DBE will perform;
- (3) The dollar amount of the participation of each DBE firm participating. The dollar amount of participation for identified work shall specifically state the quantity, unit price, and total subcontract price for the work to be completed by the DBE. If partial pay items are to be performed by the DBE, indicate the portion of each item, a unit price where appropriate and the subcontract price amount;
- (4) DBE Participation Commitment Statements, form SBE 2025, signed by the bidder and each participating DBE firm documenting the commitment to use the DBE subcontractors whose participation is submitted to meet the contract goal;
- (5) if the bidder is a joint venture comprised of DBE companies and non-DBE companies, the plan must also include a clear identification of the portion of the work to be performed by the DBE partner(s); and,
- (6) If the contract goal is not met, evidence of good faith efforts.

GOOD FAITH EFFORT PROCEDURES. The contract will not be awarded until the Utilization Plan submitted by the apparent successful bidder is approved. All information submitted by the bidder must be complete, accurate and adequately document that enough DBE participation has been obtained or document that good faith efforts of the bidder, in the event enough DBE participation has not been obtained, before the Department will commit to the performance of the contract by the bidder. The Utilization Plan will be approved by the Department if the Utilization Plan documents sufficient commercially useful DBE work performance to meet the contract goal or the bidder submits sufficient documentation of a good faith effort to meet the contract goal pursuant to 49 CFR Part 26, Appendix A. The Utilization Plan will not be approved by the Department if the Utilization Plan does not document sufficient DBE participation to meet the contract goal unless the apparent successful bidder documented in the Utilization Plan that it made a good faith effort to meet the goal. This means that the bidder must show that all necessary and reasonable steps were taken to achieve the contract goal. Necessary and reasonable steps are those which, by their scope, intensity and appropriateness to the objective, could reasonably be expected to obtain sufficient DBE participation, even if they were not successful. The Department will consider the quality, quantity, and intensity of the kinds of efforts that the bidder has made. Mere *pro forma* efforts, in other words, efforts done as a matter of form, are not good faith efforts; rather, the bidder is expected to have taken genuine efforts that would be reasonably expected of a bidder actively and aggressively trying to obtain DBE participation sufficient to meet the contract goal.

- (a) The following is a list of types of action that the Department will consider as part of the evaluation of the bidder's good faith efforts to obtain participation. These listed factors are not intended to be a mandatory checklist and are not intended to be exhaustive. Other factors or efforts brought to the attention of the Department may be relevant in appropriate cases, and will be considered by the Department.

- (1) Soliciting through all reasonable and available means (e.g. attendance at pre-bid meetings, advertising and/or written notices) the interest of all certified DBE companies that have the capability to perform the work of the contract. The bidder must solicit this interest within sufficient time to allow the DBE companies to respond to the solicitation. The bidder must determine with certainty if the DBE companies are interested by taking appropriate steps to follow up initial solicitations.
- (2) Selecting portions of the work to be performed by DBE companies in order to increase the likelihood that the DBE goals will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate DBE participation, even when the prime Contractor might otherwise prefer to perform these work items with its own forces.
- (3) Providing interested DBE companies with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation.
- (4)
 - a. Negotiating in good faith with interested DBE companies. It is the bidder's responsibility to make a portion of the work available to DBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available DBE subcontractors and suppliers, so as to facilitate DBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of DBE companies that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for DBE companies to perform the work.
 - b. A bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and would take a firm's price and capabilities as well as contract goals into consideration. However, the fact that there may be some additional costs involved in finding and using DBE companies is not in itself sufficient reason for a bidder's failure to meet the contract DBE goal, as long as such costs are reasonable. Also the ability or desire of a bidder to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts. Bidders are not, however, required to accept higher quotes from DBE companies if the price difference is excessive or unreasonable.
- (5) Not rejecting DBE companies as being unqualified without sound reasons based on a thorough investigation of their capabilities. The bidder's standing within its industry, membership in specific groups, organizations, or associations and political or social affiliations (for example union vs. non-union employee status) are not legitimate causes for the rejection or non-solicitation of bids in the bidder's efforts to meet the project goal.

- (6) Making efforts to assist interested DBE companies in obtaining bonding, lines of credit, or insurance as required by the recipient or Contractor.
 - (7) Making efforts to assist interested DBE companies in obtaining necessary equipment, supplies, materials, or related assistance or services.
 - (8) Effectively using the services of available minority/women community organizations; minority/women contractors' groups; local, state, and federal minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of DBE companies.
- (b) If the Department determines that the apparent successful bidder has made a good faith effort to secure the work commitment of DBE companies to meet the contract goal, the Department will award the contract provided that it is otherwise eligible for award. If the Department determines that the bidder has failed to meet the requirements of this Special Provision or that a good faith effort has not been made, the Department will notify the responsible company official designated in the Utilization Plan that the bid is not responsive. The notification shall include a statement of reasons for the determination.
- (c) The bidder may request administrative reconsideration of a determination adverse to the bidder within the five working days after the receipt of the notification date of the determination by delivering the request to the Department of Transportation, Bureau of Small Business Enterprises, Contract Compliance Section, 2300 South Dirksen Parkway, Room 319, Springfield, Illinois 62764 (Telefax: (217)785-1524). Deposit of the request in the United States mail on or before the fifth business day shall not be deemed delivery. The determination shall become final if a request is not made and delivered. A request may provide additional written documentation and/or argument concerning the issues raised in the determination statement of reasons, provided the documentation and arguments address efforts made prior to submitting the bid. The request will be forwarded to the Department's Reconsideration Officer. The Reconsideration Officer will extend an opportunity to the bidder to meet in person in order to consider all issues of documentation and whether the bidder made a good faith effort to meet the goal. After the review by the Reconsideration Officer, the bidder will be sent a written decision within ten working days after receipt of the request for consideration, explaining the basis for finding that the bidder did or did not meet the goal or make adequate good faith efforts to do so. A final decision by the Reconsideration Officer that a good faith effort was made shall approve the Utilization Plan submitted by the bidder and shall clear the contract for award. A final decision that a good faith effort was not made shall render the bid not responsive.

CALCULATING DBE PARTICIPATION. The Utilization Plan values represent work anticipated to be performed and paid for upon satisfactory completion. The Department is only able to count toward the achievement of the overall goal and the contract goal the value of payments made for the work actually performed by DBE companies. In addition, a DBE must perform a commercially useful function on the contract to be counted. A commercially useful function is

generally performed when the DBE is responsible for the work and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. The Department and Contractor are governed by the provisions of 49 CFR Part 26.55(c) on questions of commercially useful functions as it affects the work. Specific counting guidelines are provided in 49 CFR Part 26.55, the provisions of which govern over the summary contained herein.

- (a) DBE as the Contractor: 100 percent goal credit for that portion of the work performed by the DBE's own forces, including the cost of materials and supplies. Work that a DBE subcontracts to a non-DBE does not count toward the DBE goals.
- (b) DBE as a joint venture Contractor: 100 percent goal credit for that portion of the total dollar value of the contract equal to the distinct, clearly defined portion of the work performed by the DBE's own forces.
- (c) DBE as a subcontractor: 100 percent goal credit for the work of the subcontract performed by the DBE's own forces, including the cost of materials and supplies, excluding the purchase of materials and supplies or the lease of equipment by the DBE subcontractor from the prime Contractor or its affiliates. Work that a DBE subcontractor in turn subcontracts to a non-DBE does not count toward the DBE goal.
- (d) DBE as a trucker: 100 percent goal credit for trucking participation provided the DBE is responsible for the management and supervision of the entire trucking operation for which it is responsible. At least one truck owned, operated, licensed, and insured by the DBE must be used on the contract. Credit will be given for the following:
 - (1) The DBE may lease trucks from another DBE firm, including an owner-operator who is certified as a DBE. The DBE who leases trucks from another DBE receives credit for the total value of the transportation services the lessee DBE provides on the contract.
 - (2) The DBE may also lease trucks from a non-DBE firm, including from an owner-operator. The DBE who leases trucks from a non-DBE is entitled to credit only for the fee or commission it receives as a result of the lease arrangement.
- (e) DBE as a material supplier:
 - (1) 60 percent goal credit for the cost of the materials or supplies purchased from a DBE regular dealer.
 - (2) 100 percent goal credit for the cost of materials or supplies obtained from a DBE manufacturer.
 - (3) 100 percent credit for the value of reasonable fees and commissions for the procurement of materials and supplies if not a regular dealer or manufacturer.

CONTRACT COMPLIANCE. Compliance with this Special Provision is an essential part of the contract. The Department is prohibited by federal regulations from crediting the participation of a DBE included in the Utilization Plan toward either the contract goal or the Department's overall goal until the amount to be applied toward the goals has been paid to the DBE. The following administrative procedures and remedies govern the compliance by the Contractor with the contractual obligations established by the Utilization Plan. After approval of the Utilization Plan and award of the contract, the Utilization Plan and individual DBE Participation Statements become part of the contract. If the Contractor did not succeed in obtaining enough DBE participation to achieve the advertised contract goal, and the Utilization Plan was approved and contract awarded based upon a determination of good faith, the total dollar value of DBE work calculated in the approved Utilization Plan as a percentage of the awarded contract value shall become the amended contract goal. All work indicated for performance by an approved DBE shall be performed, managed, and supervised by the DBE executing the Participation Statement.

- (a) NO AMENDMENT. No amendment to the Utilization Plan may be made without prior written approval from the Department's Bureau of Small Business Enterprises. All requests for amendment to the Utilization Plan shall be submitted to the Department of Transportation, Bureau of Small Business Enterprises, Contract Compliance Section, 2300 South Dirksen Parkway, Room 319, Springfield, Illinois 62764. Telephone number (217)785-4611. Telefax number (217)785-1524.
- (b) TERMINATION OR REPLACEMENT. The Contractor shall not terminate or replace a DBE listed on the approved Utilization Plan, or perform with other forces work designated for a listed DBE except as provided in the Special Provision.
- (c) CHANGES TO WORK. Any deviation from the DBE condition-of-award or contract plans, specifications, or special provisions must be approved, in writing, by the Department as provided elsewhere in the Contract. The Contractor shall notify affected DBEs in writing of any changes in the scope of work which result in a reduction in the dollar amount condition-of-award to the contract. Where the revision includes work committed to a new DBE subcontractor, not previously involved in the project, then a Request for Approval of Subcontractor, Department form BC 260A, must be signed and submitted. If the commitment of work is in the form of additional tasks assigned to an existing subcontract, then a new Request for Approval of Subcontractor shall not be required. However, the Contractor must document efforts to assure that the existing DBE subcontractor is capable of performing the additional work and has agreed in writing to the change.
- (d) ALTERNATIVE WORK METHODS. In addition to the above requirements for reductions in the condition of award, additional requirements apply to the two cases of Contractor-initiated work substitution proposals. Where the contract allows alternate work methods which serve to delete or create underruns in condition of award DBE work, and the Contractor selects that alternate method or, where the Contractor proposes a substitute work method or material that serves to diminish or delete work committed to a DBE and replace it with other work, then the Contractor must demonstrate one of the following:

- (1) That the replacement work will be performed by the same DBE (as long as the DBE is certified in the respective item of work) in a modification of the condition of award;
or
- (2) That the DBE is aware that its work will be deleted or will experience underruns and has agreed in writing to the change. If this occurs, the Contractor shall substitute other work of equivalent value to a certified DBE or provide documentation of good faith efforts to do so; or
- (3) That the DBE is not capable of performing the replacement work or has declined to perform the work at a reasonable competitive price. If this occurs, the Contractor shall substitute other work of equivalent value to a certified DBE or provide documentation of good faith efforts to do so.

(e) TERMINATION AND REPLACEMENT PROCEDURES. The Contractor shall not terminate or replace a DBE subcontractor listed in the approved Utilization Plan without prior written consent. This includes, but is not limited to, instances in which the Contractor seeks to perform work originally designated for a DBE subcontractor with its own forces or those of an affiliate, a non-DBE firm, or with another DBE firm. Written consent will be granted only if the Bureau of Small Business Enterprises agrees, for reasons stated in its concurrence document, that the Contractor has good cause to terminate or replace the DBE firm. Before transmitting to the Bureau of Small Business Enterprises any request to terminate and/or substitute a DBE subcontractor, the Contractor shall give notice in writing to the DBE subcontractor, with a copy to the Bureau, of its intent to request to terminate and/or substitute, and the reason for the request. The Contractor shall give the DBE five days to respond to the Contractor's notice. The DBE so notified shall advise the Bureau and the Contractor of the reasons, if any, why it objects to the proposed termination of its subcontract and why the Bureau should not approve the Contractor's action. If required in a particular case as a matter of public necessity, the Bureau may provide a response period shorter than five days.

For purposes of this paragraph, good cause includes the following circumstances:

- (1) The listed DBE subcontractor fails or refuses to execute a written contract;
- (2) The listed DBE subcontractor fails or refuses to perform the work of its subcontract in a way consistent with normal industry standards. Provided, however, that good cause does not exist if the failure or refusal of the DBE subcontractor to perform its work on the subcontract results from the bad faith or discriminatory action of the prime contractor;
- (3) The listed DBE subcontractor fails or refuses to meet the prime Contractor's reasonable, nondiscriminatory bond requirements;

- (4) The listed DBE subcontractor becomes bankrupt, insolvent, or exhibits credit unworthiness;
- (5) The listed DBE subcontractor is ineligible to work on public works projects because of suspension and debarment proceedings pursuant 2 CFR Parts 180, 215 and 1,200 or applicable state law.
- (6) You have determined that the listed DBE subcontractor is not a responsible contractor;
- (7) The listed DBE subcontractor voluntarily withdraws from the projects and provides to you written notice of its withdrawal;
- (8) The listed DBE is ineligible to receive DBE credit for the type of work required;
- (9) A DBE owner dies or becomes disabled with the result that the listed DBE contractor is unable to complete its work on the contract;
- (10) Other documented good cause that compels the termination of the DBE subcontractor. Provided, that good cause does not exist if the prime Contractor seeks to terminate a DBE it relied upon to obtain the contract so that the prime Contractor can self-perform the work for which the DBE contractor was engaged or so that the prime Contractor can substitute another DBE or non-DBE contractor after contract award.

When a DBE is terminated, or fails to complete its work on the Contract for any reason the Contractor shall make a good faith effort to find another DBE to substitute for the original DBE to perform at least the same amount of work under the contract as the terminated DBE to the extent needed to meet the established Contract goal.

- (f) PAYMENT RECORDS. The Contractor shall maintain a record of payments for work performed to the DBE participants. The records shall be made available to the Department for inspection upon request. After the performance of the final item of work or delivery of material by a DBE and final payment therefore to the DBE by the Contractor, but not later than thirty calendar days after payment has been made by the Department to the Contractor for such work or material, the Contractor shall submit a DBE Payment Agreement on Department form SBE 2115 to the Regional Engineer. If full and final payment has not been made to the DBE, the DBE Payment Agreement shall indicate whether a disagreement as to the payment required exists between the Contractor and the DBE or if the Contractor believes that the work has not been satisfactorily completed. If the Contractor does not have the full amount of work indicated in the Utilization Plan performed by the BDE companies indicated in the Utilization Plan and after good faith efforts are reviewed, the Department may deduct from contract payments to the Contractor the amount of the goal not achieved as liquidated and ascertained damages. The Contractor may request an administrative

| reconsideration of any amount deducted as damages pursuant to subsection (h) of this part.

| (g) ENFORCEMENT. The Department reserves the right to withhold payment to the Contractor to enforce the provisions of this Special Provision. Final payment shall not be made on the contract until such time as the Contractor submits sufficient documentation demonstrating achievement of the goal in accordance with this Special Provision or after liquidated damages have been determined and collected.

| (h) RECONSIDERATION. Notwithstanding any other provision of the contract, including but not limited to Article 109.09 of the Standard Specifications, the Contractor may request administrative reconsideration of a decision to deduct the amount of the goal not achieved as liquidated damages. A request to reconsider shall be delivered to the Contract Compliance Section and shall be handled and considered in the same manner as set forth in paragraph (c) of "Good Faith Effort Procedures" of this Special Provision, except a final decision that a good faith effort was not made during contract performance to achieve the goal agreed to in the Utilization Plan shall be the final administrative decision of the Department.

80029

FLAGGER AT SIDE ROADS AND ENTRANCES (BDE)

Effective: April 1, 2009

Revise the second paragraph of Article 701.13(a) of the Standard Specifications to read:

“The Engineer will determine when a side road or entrance shall be closed to traffic. A flagger will be required at each side road or entrance remaining open to traffic within the operation where two-way traffic is maintained on one lane of pavement. The flagger shall be positioned as shown on the plans or as directed by the Engineer.”

Revise the first and second paragraph of Article 701.20(i) of the Standard Specifications to read:

“Signs, barricades, or other traffic control devices required by the Engineer over and above those specified will be paid for according to Article 109.04. All flaggers required at side roads and entrances remaining open to traffic including those that are shown on the Highway Standards and/or additional barricades required by the Engineer to close side roads and entrances will be paid for according to Article 109.04.”

80228

FRICITION AGGREGATE (BDE)

Effective: January 1, 2011

Revise Article 1004.01(a)(4) of the Standard Specifications to read:

- “(4) Crushed Stone. Crushed stone shall be the angular fragments resulting from crushing undisturbed, consolidated deposits of rock by mechanical means. Crushed stone shall be divided into the following, when specified.
- a. Carbonate Crushed Stone. Carbonate crushed stone shall be either dolomite or limestone. Dolomite shall contain 11.0 percent or more magnesium oxide (MgO). Limestone shall contain less than 11.0 percent magnesium oxide (MgO).
 - b. Crystalline Crushed Stone. Crystalline crushed stone shall be either metamorphic or igneous stone, including but is not limited to, quartzite, granite, rhyolite and diabase.”

Revise Article 1004.03(a) of the Standard Specifications to read:

“1004.03 Coarse Aggregate for Hot-Mix Asphalt (HMA). The aggregate shall be according to Article 1004.01 and the following.

(a) Description. The coarse aggregate for HMA shall be according to the following table.

Use	Mixture	Aggregates Allowed
Class A	Seal or Cover	<u>Allowed Alone or in Combination:</u> Gravel Crushed Gravel Carbonate Crushed Stone Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Steel Slag Crushed Concrete
HMA All Other	Stabilized Subbase or Shoulders	<u>Allowed Alone or in Combination:</u> Gravel Crushed Gravel Carbonate Crushed Stone Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Steel Slag ^{1/} Crushed Concrete

Use	Mixture	Aggregates Allowed
HMA High ESAL Low ESAL	Binder IL-25.0, IL-19.0, or IL-19.0L SMA Binder	<u>Allowed Alone or in Combination:</u> Crushed Gravel Carbonate Crushed Stone ^{2/} Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Concrete ^{3/}
HMA High ESAL Low ESAL	C Surface and Leveling Binder IL-12.5,IL-9.5, or IL-9.5L SMA Ndesign 50 Surface	<u>Allowed Alone or in Combination:</u> Crushed Gravel Carbonate Crushed Stone ^{2/} Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Steel Slag ^{4/} Crushed Concrete ^{3/}
HMA High ESAL	D Surface and Leveling Binder IL-12.5 or IL-9.5 SMA Ndesign 50 Surface	<u>Allowed Alone or in Combination:</u> Crushed Gravel Carbonate Crushed Stone (other than Limestone) ^{2/} Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) ^{5/} Crushed Steel Slag ^{4/ 5/} Crushed Concrete ^{3/}
		<u>Other Combinations Allowed:</u>
		<i>Up to...</i> <i>With...</i>
		25% Limestone Dolomite
		50% Limestone Any Mixture D aggregate other than Dolomite
		75% Limestone Crushed Slag (ACBF) ^{5/} or Crushed Sandstone

Use	Mixture	Aggregates Allowed	
HMA High ESAL	E Surface IL-12.5 or IL-9.5 SMA Ndesign 80 Surface	<u>Allowed Alone or in Combination:</u> Crushed Gravel Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) ^{5/} Crushed Steel Slag ^{5/} Crushed Concrete ^{3/} No Limestone.	
		<u>Other Combinations Allowed:</u>	
		<i>Up to...</i>	<i>With...</i>
		50% Dolomite ^{2/}	Any Mixture E aggregate
		75% Dolomite ^{2/}	Crushed Sandstone, Crushed Slag (ACBF) ^{5/} , Crushed Steel Slag ^{5/} , or Crystalline Crushed Stone
75% Crushed Gravel or Crushed Concrete ^{3/}	Crushed Sandstone, Crystalline Crushed Stone, Crushed Slag (ACBF) ^{5/} , or Crushed Steel Slag ^{5/}		
HMA High ESAL	F Surface IL-12.5 or IL-9.5 SMA Ndesign 80 Surface	<u>Allowed Alone or in Combination:</u> Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) ^{5/} Crushed Steel Slag ^{5/} No Limestone.	
		<u>Other Combinations Allowed:</u>	
		<i>Up to...</i>	<i>With...</i>

Use	Mixture	Aggregates Allowed	
		50% Crushed Gravel, Crushed Concrete ^{3/} , or Dolomite ^{2/}	Crushed Sandstone, Crushed Slag (ACBF) ^{5/} , Crushed Steel Slag ^{5/} , or Crystalline Crushed Stone

- 1/ Crushed steel slag allowed in shoulder surface only.
- 2/ Carbonate crushed stone shall not be used in SMA Ndesign 80. In SMA Ndesign 50, carbonate crushed stone shall not be blended with any of the other aggregates allowed alone in Ndesign 50 SMA binder or Ndesign 50 SMA surface.
- 3/ Crushed concrete will not be permitted in SMA mixes.
- 4/ Crushed steel slag shall not be used as leveling binder.
- 5/ When either slag is used, the blend percentages listed shall be by volume."

80265

FUEL COST ADJUSTMENT (BDE) (RETURN FORM WITH BID)

Effective: April 1, 2009

Revised: July 1, 2009

Description. Fuel cost adjustments will be made to provide additional compensation to the Contractor, or a credit to the Department, for fluctuations in fuel prices when optioned by the Contractor. The bidder shall indicate on the attached form whether or not this special provision will be part of the contract and submit the completed form with his/her bid. Failure to submit the form or failure to indicate contract number, company name and sign and date the form shall make this contract exempt of fuel cost adjustments for all categories of work. Failure to indicate "Yes" for any category of work will make that category of work exempt from fuel cost adjustment.

General. The fuel cost adjustment shall apply to contract pay items as grouped by category. The adjustment shall only apply to those categories of work checked "Yes", and only when the cumulative plan quantities for a category exceed the required threshold. Adjustments to work items in a category, either up or down, and work added by adjusted unit price will be subject to fuel cost adjustment only when the category representing the added work was subject to the fuel cost adjustment. Added work paid for by time and materials will not be subject to fuel cost adjustment. Category descriptions and thresholds for application and the fuel usage factors which are applicable to each are as follows:

(a) Categories of Work.

- (1) Category A: Earthwork. Contract pay items performed under Sections 202, 204, and 206 including any modified standard or nonstandard items where the character of the work to be performed is considered earthwork. The cumulative total of all applicable item plan quantities shall exceed 25,000 cu yd (20,000 cu m). Included in the fuel usage factor is a weighted average 0.10 gal/cu yd (0.50 liters/cu m) factor for trucking.
- (2) Category B: Subbases and Aggregate Base Courses. Contract pay items constructed under Sections 311, 312 and 351 including any modified standard or nonstandard items where the character of the work to be performed is considered construction of a subbase or aggregate, stabilized or modified base course. The cumulative total of all applicable item plan quantities shall exceed 5000 tons (4500 metric tons). Included in the fuel usage factor is a 0.60 gal/ton (2.50 liters/metric ton) factor for trucking.
- (3) Category C: Hot-Mix Asphalt (HMA) Bases, Pavements and Shoulders. Contract pay items constructed under Sections 355, 406, 407 and 482 including any modified standard or nonstandard items where the character of the work to be performed is considered HMA bases, pavements and shoulders. The cumulative total of all applicable item plan quantities shall exceed 5000 tons (4500 metric tons). Included in the fuel usage factor is 0.60 gal/ton (2.50 liters/metric ton) factor for trucking.

(4) Category D: Portland Cement Concrete (PCC) Bases, Pavements and Shoulders. Contract pay items constructed under Sections 353, 420, 421 and 483 including any modified standard or nonstandard items where the character of the work to be performed is considered PCC base, pavement or shoulder. The cumulative total of all applicable item plan quantities shall exceed 7500 sq yd (6000 sq m). Included in the fuel usage factor is 1.20 gal/cu yd (5.94 liters/cu m) factor for trucking.

(5) Category E: Structures. Structure items having a cumulative bid price that exceeds \$250,000 for pay items constructed under Sections 502, 503, 504, 505, 512, 516 and 540 including any modified standard or nonstandard items where the character of the work to be performed is considered structure work when similar to that performed under these sections and not included in categories A through D.

(b) Fuel Usage Factors.

English Units Category	Factor	Units
A - Earthwork	0.34	gal / cu yd
B - Subbase and Aggregate Base courses	0.62	gal / ton
C - HMA Bases, Pavements and Shoulders	1.05	gal / ton
D - PCC Bases, Pavements and Shoulders	2.53	gal / cu yd
E - Structures	8.00	gal / \$1000

Metric Units Category	Factor	Units
A - Earthwork	1.68	liters / cu m
B - Subbase and Aggregate Base courses	2.58	liters / metric ton
C - HMA Bases, Pavements and Shoulders	4.37	liters / metric ton
D - PCC Bases, Pavements and Shoulders	12.52	liters / cu m
E - Structures	30.28	liters / \$1000

(c) Quantity Conversion Factors.

Category	Conversion	Factor
B	sq yd to ton	0.057 ton / sq yd / in depth
	sq m to metric ton	0.00243 metric ton / sq m / mm depth
C	sq yd to ton	0.056 ton / sq yd / in depth
	sq m to metric ton	0.00239 m ton / sq m / mm depth
D	sq yd to cu yd	0.028 cu yd / sq yd / in depth
	sq m to cu m	0.001 cu m / sq m / mm depth

Method of Adjustment. Fuel cost adjustments will be computed as follows.

$$| CA = (FPI_P - FPI_L) \times FUF \times Q$$

Where: CA = Cost Adjustment, \$
FPI_P = Fuel Price Index, as published by the Department for the month the work is performed, \$/gal (\$/liter)
FPI_L = Fuel Price Index, as published by the Department for the month prior to the letting, \$/gal (\$/liter)
FUF = Fuel Usage Factor in the pay item(s) being adjusted
Q = Authorized construction Quantity, tons (metric tons) or cu yd (cu m)

The entire FUF indicated in paragraph (b) will be used regardless of use of trucking to perform the work.

Progress Payments. Fuel cost adjustments will be calculated for each calendar month in which applicable work is performed; and will be paid or deducted when all other contract requirements for the items of work are satisfied. The adjustments shall not apply during contract time subject to liquidated damages for completion of the entire contract.

Final Quantities. Upon completion of the work and determination of final pay quantities, an adjustment will be prepared to reconcile any differences between estimated quantities previously paid and the final quantities. The value for the balancing adjustment will be based on a weighted average of FPI_P and Q only for those months requiring the cost adjustment. The cost adjustment will be applicable to the final measured quantities of all applicable pay items.

Basis of Payment. Fuel cost adjustments may be positive or negative but will only be made when there is a difference between the FPI_L and FPI_P in excess of five percent, as calculated by:

$$\text{Percent Difference} = \{(FPI_L - FPI_P) \div FPI_L\} \times 100$$

Return With Bid

**ILLINOIS DEPARTMENT
OF TRANSPORTATION**

**OPTION FOR
FUEL COST ADJUSTMENT**

The bidder shall submit this completed form with his/her bid. Failure to submit the form or properly complete contract number, company name, and sign and date the form shall make this contract exempt of fuel cost adjustments in all categories. Failure to indicate "Yes" for any category of work at the time of bid will make that category of work exempt from fuel cost adjustment. After award, this form, when submitted shall become part of the contract.

Contract No.: _____

Company Name: _____

Contractor's Option:

Is your company opting to include this special provision as part of the contract plans for the following categories of work?

- | | | |
|--|-----|--------------------------|
| Category A Earthwork. | Yes | <input type="checkbox"/> |
| Category B Subbases and Aggregate Base Courses | Yes | <input type="checkbox"/> |
| Category C HMA Bases, Pavements and Shoulders | Yes | <input type="checkbox"/> |
| Category D PCC Bases, Pavements and Shoulders | Yes | <input type="checkbox"/> |
| Category E Structures | Yes | <input type="checkbox"/> |

Signature: _____ **Date:** _____

80229

HOT-MIX ASPHALT - DENSITY TESTING OF LONGITUDINAL JOINTS (BDE)

Effective: January 1, 2010

Description. This work shall consist of testing the density of longitudinal joints as part of the quality control/quality assurance (QC/QA) of hot-mix asphalt (HMA). Work shall be according to Section 1030 of the Standard Specifications except as follows.

Quality Control/Quality Assurance (QC/QA). Delete the second and third sentence of the third paragraph of Article 1030.05(d)(3) of the Standard Specifications.

Add the following paragraphs to the end of Article 1030.05(d)(3) of the Standard Specifications:

“Longitudinal joint density testing shall be performed at each random density test location. Longitudinal joint testing shall be located at a distance equal to the lift thickness or a minimum of 2 in. (50 mm), from each pavement edge. (i.e. for a 4 in. (100 mm) lift the near edge of the density gauge or core barrel shall be within 4 in. (100 mm) from the edge of pavement.) Longitudinal joint density testing shall be performed using either a correlated nuclear gauge or cores.

- a. Confined Edge. Each confined edge density shall be represented by a one-minute nuclear density reading or a core density and shall be included in the average of density readings or core densities taken across the mat which represents the Individual Test.
- b. Unconfined Edge. Each unconfined edge joint density shall be represented by an average of three one-minute density readings or a single core density at the given density test location and shall meet the density requirements specified herein. The three one-minute readings shall be spaced ten feet apart longitudinally along the unconfined pavement edge and centered at the random density test location.”

Revise the Density Control Limits table in Article 1030.05(d)(4) of the Standard Specifications to read:

"Mixture Composition	Parameter	Individual Test (includes confined edges)	Unconfined Edge Joint Density Minimum
IL-9.5, IL-12.5	Ndesign ≥ 90	92.0 – 96.0%	90.0%
IL-9.5, IL-9.5L, IL-12.5	Ndesign < 90	92.5 – 97.4%	90.0%
IL-19.0, IL-25.0	Ndesign ≥ 90	93.0 – 96.0%	90.0%
IL-19.0, IL-19.0L, IL-25.0	Ndesign < 90	93.0 – 97.4%	90.0%
SMA	Ndesign = 50 & 80	93.5 – 97.4%	91.0%
All Other	Ndesign = 30	93.0 - 97.4%	90.0%”

80246

IMPACT ATTENUATORS, TEMPORARY (BDE)

Effective: November 1, 2003

Revised: January 1, 2012

Description. This work shall consist of furnishing, installing, maintaining, and removing temporary impact attenuators of the category and test level specified.

Materials. Materials shall be according to the impact attenuator manufacturer's specifications and the following:

Item	Article/Section
(a) Fine Aggregate (Note 1).....	1003.01
(b) Steel Posts, Structural Shapes, and Plates	1006.04
(c) Rail Elements, End Section Plates, and Splice Plates	1006.25
(d) Bolts, Nuts, Washers and Hardware	1006.25
(e) Hollow Structural Tubing	1006.27(b)
(f) Wood Posts and Wood Blockouts	1007.01, 1007.02, 1007.06
(g) Preservative Treatment	1007.12
(h) Packaged Rapid Hardening Mortar	1018.01

Note 1. Fine aggregate shall be FA 1 or FA 2, Class A quality. The sand shall be unbagged and shall have a maximum moisture content of five percent.

CONSTRUCTION REQUIREMENTS

General. Impact Attenuators shall meet the testing criteria contained in either the National Cooperative Highway Research Program (NCHRP) Report 350 or MASH and shall be on the Department's approved list.

Installation. Impact attenuators shall be installed according to the manufacturer's specifications and include all necessary transitions between the impact attenuator and the item to which it is attached. Regrading of slopes or approaches for the installation shall be as shown on the plans.

Attenuator bases, when required by the manufacturer, shall be constructed on a prepared subgrade according to the manufacturer's specifications. The surface of the base shall be slightly sloped or crowned to facilitate drainage.

When water filled attenuators are used between November 1 and April 15, they shall contain anti-freeze according to the manufacturer's recommendations.

Markings. Sand module impact attenuators shall be striped with alternating reflectorized Type AA or Type AP fluorescent orange and reflectorized white horizontal, circumferential stripes. There shall be at least two of each stripe on each module.

Other types of impact attenuators shall have a terminal marker applied to their nose and reflectors along their sides.

Maintenance. All maintenance of the impact attenuators shall be the responsibility of the Contractor until removal is directed by the Engineer.

Relocate. When relocation of temporary impact attenuators is specified, they shall be removed, relocated and reinstalled at the new location. The reinstallation requirements shall be the same as those for a new installation.

Removal. When the Engineer determines the temporary impact attenuators are no longer required, the installation shall be dismantled with all hardware becoming the property of the Contractor.

Surplus material shall be disposed of according to Article 202.03. Anti-freeze, when present, shall be disposed of/recycled according to local ordinances.

When impact attenuators have been anchored to the pavement, the anchor holes shall be repaired with rapid set mortar; only enough water to permit placement and consolidation by rodding shall be used and the material shall be struck-off flush.

Method of Measurement. This work will be measured for payment as each, where each is defined as one complete installation.

Basis of Payment. This work will be paid for at the contract unit price per each for IMPACT ATTENUATORS, TEMPORARY (FULLY REDIRECTIVE, NARROW); IMPACT ATTENUATORS, TEMPORARY (FULLY REDIRECTIVE, WIDE); IMPACT ATTENUATORS, TEMPORARY (FULLY REDIRECTIVE, RESETTABLE); IMPACT ATTENUATORS, TEMPORARY (SEVERE USE, NARROW); IMPACT ATTENUATORS, TEMPORARY (SEVERE USE, WIDE); or IMPACT ATTENUATORS, TEMPORARY (NON-REDIRECTIVE) of the test level specified.

Relocation of the devices will be paid for at the contract unit price per each for IMPACT ATTENUATORS, RELOCATE (FULLY REDIRECTIVE); IMPACT ATTENUATORS, RELOCATE (SEVERE USE); or IMPACT ATTENUATORS, RELOCATE (NON-REDIRECTIVE); of the test level specified.

Regrading of slopes or approaches will be paid for according to Section 202 and/or Section 204 of the Standard Specifications.

80110

METAL HARDWARE CAST INTO CONCRETE (BDE)

Effective: April 1, 2008
Revised: January 1, 2012

Add the following to Article 503.02 of the Standard Specifications:

“(h) Metal Hardware Cast into Concrete 1006.13”

Add the following to Article 504.02 of the Standard Specifications:

“(j) Metal Hardware Cast into Concrete 1006.13”

Revise Article 1006.13 of the Standard Specifications to read:

“1006.13 Metal Hardware Cast into Concrete. Unless otherwise noted, all steel hardware cast into concrete, such as inserts, brackets, cable clamps, metal casings for formed holes, and other miscellaneous items, shall be galvanized according to AASHTO M 232 or AASHTO M 111. Aluminum inserts will not be allowed. Zinc alloy inserts shall be according to ASTM B 86, Alloys 3, 5, or 7.

When stainless steel junction boxes or other stainless steel appurtenances are specified, Type 304 stainless steel hardware shall be used when cast into concrete.

The inserts shall be UNC threaded type anchorages having the following minimum certified proof load.

Insert Diameter	Proof Load
5/8 in. (16 mm)	6600 lb (29.4 kN)
3/4 in. (19 mm)	6600 lb (29.4 kN)
1 in. (25 mm)	9240 lb (41.1 kN)”

80203

PAVEMENT PATCHING (BDE)

Effective: January 1, 2010

Revise the first sentence of the second paragraph of Article 701.17(e)(1) of the Standard Specifications to read:

“In addition to the traffic control and protection shown elsewhere in the contract for pavement, two devices shall be placed immediately in front of each open patch, open hole, and broken pavement where temporary concrete barriers are not used to separate traffic from the work area.”

80254

PAYMENTS TO SUBCONTRACTORS (BDE)

Effective: June 1, 2000

Revised: January 1, 2006

Federal regulations found at 49 CFR §26.29 mandate the Department to establish a contract clause to require Contractors to pay subcontractors for satisfactory performance of their subcontracts and to set the time for such payments.

State law also addresses the timing of payments to be made to subcontractors and material suppliers. Section 7 of the Prompt Payment Act, 30 ILCS 540/7, requires that when a Contractor receives any payment from the Department, the Contractor shall make corresponding, proportional payments to each subcontractor and material supplier performing work or supplying material within 15 calendar days after receipt of the Department payment. Section 7 of the Act further provides that interest in the amount of two percent per month, in addition to the payment due, shall be paid to any subcontractor or material supplier by the Contractor if the payment required by the Act is withheld or delayed without reasonable cause. The Act also provides that the time for payment required and the calculation of any interest due applies to transactions between subcontractors and lower-tier subcontractors and material suppliers throughout the contracting chain.

This Special Provision establishes the required federal contract clause, and adopts the 15 calendar day requirement of the State Prompt Payment Act for purposes of compliance with the federal regulation regarding payments to subcontractors. This contract is subject to the following payment obligations.

When progress payments are made to the Contractor according to Article 109.07 of the Standard Specifications, the Contractor shall make a corresponding payment to each subcontractor and material supplier in proportion to the work satisfactorily completed by each subcontractor and for the material supplied to perform any work of the contract. The proportionate amount of partial payment due to each subcontractor and material supplier throughout the contracting chain shall be determined by the quantities measured or otherwise determined as eligible for payment by the Department and included in the progress payment to the Contractor. Subcontractors and material suppliers shall be paid by the Contractor within 15 calendar days after the receipt of payment from the Department. The Contractor shall not hold retainage from the subcontractors. These obligations shall also apply to any payments made by subcontractors and material suppliers to their subcontractors and material suppliers; and to all payments made to lower tier subcontractors and material suppliers throughout the contracting chain. Any payment or portion of a payment subject to this provision may only be withheld from the subcontractor or material supplier to whom it is due for reasonable cause.

This Special Provision does not create any rights in favor of any subcontractor or material supplier against the State or authorize any cause of action against the State on account of any payment, nonpayment, delayed payment, or interest claimed by application of the State Prompt Payment Act. The Department will not approve any delay or postponement of the 15 day requirement except for reasonable cause shown after notice and hearing pursuant to Section

| 7(b) of the State Prompt Payment Act. State law creates other and additional remedies available to any subcontractor or material supplier, regardless of tier, who has not been paid for work properly performed or material furnished. These remedies are a lien against public funds set forth in Section 23(c) of the Mechanics Lien Act, 770 ILCS 60/23(c), and a recovery on the Contractor's payment bond according to the Public Construction Bond Act, 30 ILCS 550.

80022

PLANTING WOODY PLANTS (BDE)

Effective: January 1, 2012

Revise the first sentence of the second paragraph of Article 253.14 of the Standard Specifications to read:

“This period of establishment for the plants shall not delay acceptance of the entire project and final payment due if the contractor requires and receives from the subcontractor a third party performance bond naming the Department as obligee in the full amount of the planting quantities subject to this period of establishment, multiplied by their contract unit prices.”

Revise Article 253.17 of the Standard Specifications to read:

“253.17 Basis of Payment. This work will be paid for at the contract unit price per each for TREES, SHRUBS, or VINES, of the species, root type, and plant size specified; and per unit for SEEDLINGS. Payment will be made according to the following schedule.

- (a) Initial Payment. Upon completion of planting, mulch covering, wrapping, and bracing, 90 percent of the pay item(s) will be paid.
- (b) Final Payment. Upon inspection and acceptance of the plant material, or upon execution of a third party bond, the remaining ten percent of the pay item(s) will be paid.”

80278

PORTLAND CEMENT CONCRETE (BDE)

Effective: January 1, 2012

Revise Notes 1 and 2 of Article 312.24 of the Standard Specifications to read:

"Note 1. Coarse aggregate shall be gradation CA 6, CA 7, CA 9, CA 10, or CA 11, Class D quality or better. Article 1020.05(d) shall apply.

Note 2. Fine aggregate shall be FA 1 or FA 2. Article 1020.05(d) shall apply."

Revise the first paragraph of Article 312.26 of the Standard Specifications to read:

"312.26 Proportioning and Mix Design. At least 60 days prior to start of placing CAM II, the Contractor shall submit samples of materials for proportioning and testing. The mixture shall contain a minimum of 200 lb (90 kg) of cement per cubic yard (cubic meter). Portland cement may be replaced with fly ash according to Article 1020.05(c)(1). Blends of coarse and fine aggregates will be permitted, provided the volume of fine aggregate does not exceed the volume of coarse aggregate. The Engineer will determine the proportions of materials for the mixture. However, the Contractor may substitute their own mix design. Article 1020.05(a) shall apply and a Level III PCC Technician shall develop the mix design."

Revise the second paragraph of Article 503.22 of the Standard Specifications to read:

Other cast-in-place concrete for structures will be paid for at the contract unit price per cubic yard (cubic meter) for CONCRETE HANDRAIL, CONCRETE ENCASEMENT, and SEAL COAT CONCRETE."

Add the following to Article 1003.02 of the Standard Specifications:

(e) Alkali Reaction.

- (1) ASTM C 1260. Each fine aggregate will be tested by the Department for alkali reaction according to ASTM C 1260. The test will be performed with Type I or II portland cement having a total equivalent alkali content ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$) of 0.90 percent or greater. The Engineer will determine the assigned expansion value for each aggregate, and these values will be made available on the Department's Alkali-Silica Potential Reactivity Rating List. The Engineer may differentiate aggregate based on ledge, production method, gradation number, or other factors. An expansion value of 0.03 percent will be assigned to limestone or dolomite fine aggregates (manufactured stone sand). However, the Department reserves the right to perform the ASTM C 1260 test.

- (2) ASTM C 1293 by Department. In some instances, such as chert natural sand or other fine aggregates, testing according to ASTM C 1260 may not provide accurate test results. In this case, the Department may only test according to ASTM C 1293.
- (3) ASTM C 1293 by Contractor. If an individual aggregate has an ASTM C 1260 expansion value that is unacceptable to the Contractor, an ASTM C 1293 test may be performed by the Contractor to evaluate the Department's ASTM C 1260 test result. The laboratory performing the ASTM C 1293 test shall be approved by the Department according to the current Bureau of Materials and Physical Research Policy Memorandum "Minimum Laboratory Requirements for Alkali-Silica Reactivity (ASR) Testing".

The ASTM C 1293 test shall be performed with Type I or II portland cement having a total equivalent alkali content ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$) of 0.80 percent or greater. The interior vertical wall of the ASTM C 1293 recommended container (pail) shall be half covered with a wick of absorbent material consisting of blotting paper. If the testing laboratory desires to use an alternate container, wick of absorbent material, or amount of coverage inside the container with blotting paper, ASTM C 1293 test results with an alkali-reactive aggregate of known expansion characteristics shall be provided to the Engineer for review and approval. If the expansion is less than 0.040 percent after one year, the aggregate will be assigned an ASTM C 1260 expansion value of 0.08 percent that will be valid for two years, unless the Engineer determines the aggregate has changed significantly. If the aggregate is manufactured into multiple gradation numbers, and the other gradation numbers have the same or lower ASTM C 1260 value, the ASTM C 1293 test result may apply to multiple gradation numbers.

The Engineer reserves the right to verify a Contractor's ASTM C 1293 test result. When the Contractor performs the test, a split sample shall be provided to the Engineer. The Engineer may also independently obtain a sample at any time. The aggregate will be considered reactive if the Contractor or Engineer obtains an expansion value of 0.040 percent or greater.

Revise Article 1004.02(d) of the Standard Specifications to read:

"(d) Combining Sizes. Each size shall be stored separately and care shall be taken to prevent them from being mixed until they are ready to be proportioned. Separate compartments shall be provided to proportion each size.

- (1) When Class BS concrete is to be pumped, the coarse aggregate gradation shall have a minimum of 45 percent passing the 1/2 in. (12.5 mm) sieve. The Contractor

may combine two or more coarse aggregate sizes, consisting of CA 7, CA 11, CA 13, CA 14, and CA 16, provided a CA 7 or CA 11 is included in the blend.

- (2) If the coarse aggregate is furnished in separate sizes, they shall be combined in proportions to provide a uniformly graded coarse aggregate grading within the following limits.

Class of Concrete ^{1/}	Combined Sizes	Sieve Size and Percent Passing						
		2 1/2 in.	2 in.	1 3/4 in.	1 1/2 in.	1 in.	1/2 in.	No. 4
PV ^{2/}	CA 5 & CA 7	---	---	100	98±2	72±22	22±12	3±3
	CA 5 & CA 11	---	---	100	98±2	72±22	22±12	3±3
SI and SC ^{2/}	CA 3 & CA 7	100	95±5	---	---	55±25	20±10	3±3
	CA 3 & CA 11	100	95±5	---	---	55±25	20±10	3±3
	CA 5 & CA 7	---	---	100	98±2	72±22	22±12	3±3
	CA 5 & CA 11	---	---	100	98±2	72±22	22±12	3±3

Class of Concrete ^{1/}	Combined Sizes	Sieve Size (metric) and Percent Passing						
		63 mm	50 mm	45 mm	37.5 mm	25 mm	12.5 mm	4.75 mm
PV ^{2/}	CA 5 & CA 7	---	---	100	98±2	72±22	22±12	3±3
	CA 5 & CA 11	---	---	100	98±2	72±22	22±12	3±3
SI and SC ^{2/}	CA 3 & CA 7	100	95±5	---	---	55±25	20±10	3±3
	CA 3 & CA 11	100	95±5	---	---	55±25	20±10	3±3
	CA 5 & CA 7	---	---	100	98±2	72±22	22±12	3±3
	CA 5 & CA 11	---	---	100	98±2	72±22	22±12	3±3

1/ See Table 1 of Article 1020.04.

2/ Any of the listed combination of sizes may be used.”

Add the following to Article 1004.02 of the Standard Specifications:

(g) Alkali Reaction.

- (1) Each coarse aggregate will be tested by the Department for alkali reaction according to ASTM C 1260. The test will be performed with Type I or II portland cement having a total equivalent alkali content (Na₂O + 0.658K₂O) of 0.90 percent or greater. The Engineer will determine the assigned expansion value for each aggregate, and these values will be made available on the Department’s Alkali-Silica Potential Reactivity Rating List. The Engineer may differentiate aggregate based on ledge, production method, gradation number, or other factors. An expansion value of 0.05 percent will

be assigned to limestone or dolomite coarse aggregates. However, the Department reserves the right to perform the ASTM C 1260 test.

(2) ASTM C 1293 by Department. In some instances testing a coarse aggregate according to ASTM C 1260 may not provide accurate test results. In this case, the Department may only test according to ASTM C 1293.

(3) ASTM C 1293 by Contractor. If an individual aggregate has an ASTM C 1260 expansion value that is unacceptable to the Contractor, an ASTM C 1293 test may be performed by the Contractor according to Article 1003.02(e)(3).

Revise the first paragraph of Article 1019.06 of the Standard Specifications to read:

“1019.06 Contractor Mix Design. A Contractor may submit their own mix design and may propose alternate fine aggregate materials, fine aggregate gradations, or material proportions. Article 1020.05(a) shall apply and a Level III PCC Technician shall develop the mix design.”

Revise Section 1020 of the Standard Specifications to read:

“SECTION 1020. PORTLAND CEMENT CONCRETE

1020.01 Description. This item shall consist of the materials, mix design, production, testing, curing, low air temperature protection, and temperature control of concrete.

1020.02 Materials. Materials shall be according to the following.

Item	Article/Section
(a) Cement	1001
(b) Water	1002
(c) Fine Aggregate	1003
(d) Coarse Aggregate	1004
(e) Concrete Admixtures	1021
(f) Finely Divided Minerals	1010
(g) Concrete Curing Materials	1022
(h) Straw	1081.06(a)(1)
(i) Calcium Chloride	1013.01

1020.03 Equipment. Equipment shall be according to the following.

Item	Article/Section
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(a) Concrete Mixers and Trucks	1103.01
(b) Batching and Weighing Equipment	1103.02
(c) Automatic and Semi-Automatic Batching Equipment	1103.03
(d) Water Supply Equipment	1103.11
(e) Membrane Curing Equipment	1101.09
(f) Mobile Portland Cement Concrete Plants	1103.04

1020.04 Concrete Classes and General Mix Design Criteria. The classes of concrete shown in Table 1 identify the various mixtures by the general uses and mix design criteria. If the class of concrete for a specific item of construction is not specified, Class SI concrete shall be used.

For the minimum cement factor in Table 1, it shall apply to portland cement, portland-pozzolan cement, and portland blast-furnace slag except when a particular cement is specified in the Table.

The Contractor shall not assume that the minimum cement factor indicated in Table 1 will produce a mixture that will meet the specified strength. In addition, the Contractor shall not assume that the maximum finely divided mineral allowed in a mix design according to Article 1020.05(c) will produce a mixture that will meet the specified strength. The Contractor shall select a cement factor within the allowable range that will obtain the specified strength. The Contractor shall take into consideration materials selected, seasonal temperatures, and other factors which may require the Contractor to submit multiple mix designs.

For a portland-pozzolan cement, portland blast-furnace slag cement, or when replacing portland cement with finely divided minerals per Articles 1020.05(c) and 1020.05(d), the portland cement content in the mixture shall be a minimum of 375 lbs/cu yd (222 kg/cu m). When the total of organic processing additions, inorganic processing additions, and limestone addition exceed 5.0 percent in the cement, the minimum portland cement content in the mixture shall be 400 lbs/cu yd (237 kg/cu m). When calculating the portland cement portion in the portland-pozzolan or portland blast-furnace slag cement, the AASHTO M 240 tolerance may be ignored.

Special classifications may be made for the purpose of including the concrete for a particular use or location as a separate pay item in the contract. The concrete used in such cases shall conform to this section.

TABLE 1. CLASSES OF CONCRETE AND MIX DESIGN CRITERIA

Class of Conc.	Use	Specification Section Reference	Cement Factor cwt/cu yd (3)		Water / Cement Ratio lb/lb	Slump in. (4)	Mix Design Compressive Strength (Flexural Strength) psi, minimum			Air Content %	Coarse Aggregate Gradations (14)
			Min.	Max			Days	3	14		
PV	Pavement	420 or 421									
	Base Course	353									
	Base Course Widening	354	5.65 (1)	7.05	0.32 - 0.42	2 - 4					CA 5 & CA 7, CA 5 & CA 11, CA 7, CA 11, or CA 14
	Driveway Pavement	423	6.05 (2)			(5)					
	Shoulders	483									
	Shoulder Curb	662									
PP	Pavement Patching										
	Bridge Deck Patching (10)	442									
			6.50	7.50	0.32 - 0.44	2 - 4					CA 7, CA 11, CA 13, CA 14, or CA 16
			6.20 (TY III)	7.20 (TY III)							
			7.35	7.35	0.32 - 0.38	2 - 6					
			7.35 (TY III) (8)	7.35 (TY III) (8)	0.32 - 0.35	2 - 4					
RR			6.00 (9)	6.25 (9)	0.32 - 0.50	2 - 6					
			6.75 (9)	6.75 (9)	0.32 - 0.40	2 - 8					CA 13, CA 14, or CA 16
			6.50	7.50	0.32 - 0.44	2 - 4					CA 7, CA 11, or CA 14
			6.20 (TY III)	7.20 (TY III)							
			6.05	7.05	0.32 - 0.44	2 - 4					CA 7, CA 11, or CA 14 (7)
BS	Bridge Superstructure	422									
	Bridge Approach Slab	503									
PC	Various Precast Concrete Items										
	Wet Cast Dry Cast	1042	5.65 (TY III)	7.05 (TY III)	0.32 - 0.44	1 - 4					CA 7, CA 11, CA 13, CA 14, CA 16, or CA 7 & CA 16
PS	Precast Prestressed Members	504	5.65	7.05	0.25 - 0.40	0 - 1					
	Precast Prestressed Piles and Extensions	512	5.65 (TY III)	7.05 (TY III)	0.32 - 0.44	1 - 4					CA 11 (11), CA 13, CA 14 (11), or CA 16
	Precast Prestressed Sight Screen	639									

TABLE 1. CLASSES OF CONCRETE AND MIX DESIGN CRITERIA

Class of Conc.	Use	Specification Section Reference	Cement Factor cw/cu yd (3)		Water / Cement Ratio lb/lb	Sump In. (4)	Mix Design Compressive Strength (Flexural Strength) psi. minimum			Air Content %	Coarse Aggregate Gradations (14)	
			Min.	Max			Days	3	14			28
DS	Drilled Shaft (12)	516	6.65	7.05	0.32 - 0.44	6 - 8 (6)	4000 (675)		5.0 - 8.0	CA 13, CA 14, CA 16, or a blend of these gradations.		
	Metal Shell Piles (12)	512										
SC	Sign Structures	734	5.65 (1) 6.05 (2)	7.05	0.32 - 0.44	3 - 5	3500 (650)		Optional 6.0 max.	CA 3 & CA 7, CA 3 & CA 11, CA 5 & CA 7, CA 7 & CA 11, CA 7, or CA 11		
	Drilled Shaft (12)	837										
SI	Light Tower Foundation (12)	837	5.65 (1) 6.05 (2)	7.05	0.32 - 0.44	2 - 4 (5)	3500 (650)		5.0 - 8.0	CA 3 & CA 7, CA 3 & CA 11, CA 5 & CA 7, CA 7, CA 11, CA 13, CA 14, or CA 16 (13)		
	Seal Coat	503										
SI	Structures (except Superstructure)	503	5.65 (1) 6.05 (2)	7.05	0.32 - 0.44							
	Sidewalk	424										
	Slope Wall	511										
	Encasement	512										
	Box Culverts	540										
	End Section and Collar	542										
	Curb, Gutter, Curb & Gutter, Median, and Paved Ditch	606										
	Concrete Barrier	637										
	Sign Structures	734										
	Spread Footing											
	Concrete Foundation											
	Pole Foundation (12)	836										
	Traffic Signal Foundation	878										
Drilled Shaft (12)												
Square or Rectangular												

- Notes:
- (1) Central-mixed.
 - (2) Truck-mixed or shrink-mixed. Shrink-mixed concrete will not be permitted for Class PV concrete.
 - (3) For Class SC concrete and for any other class of concrete that is to be placed underwater, except Class DS concrete, the cement factor shall be increased by ten percent.
 - (4) The maximum slump may be increased to 7 in. when a high range water-reducing admixture is used for all classes of concrete, except Class PV, SC, and PP. For Class SC, the maximum slump may be increased to 8 in. For Class PP-1, the maximum slump may be increased to 6 in. For Class PS, the 7 in. maximum slump may be increased to 8 1/2 in. if the high range water-reducing admixture is the polycarboxylate type.
 - (5) The slump range for slipform construction shall be 1/2 to 1 1/2 in.
 - (6) If concrete is placed to displace drilling fluid, or against temporary casing, the slump shall be 8 - 10 in. at the point of placement. If a water-reducing admixture is used in lieu of a high range water-reducing admixture according to Article 1020.05(b)(7), the slump shall be 2 - 4 in.
 - (7) For Class BS concrete used in bridge deck patching, the coarse aggregate gradation shall be CA 13, CA 14, or CA 16, except CA 11 may be used for full-depth patching.
 - (8) In addition to the Type III portland cement, 100 lb/cu yd of ground granulated blast-furnace slag and 50 lb/cu yd of microsilica (silica fume) shall be used. For an air temperature greater than 85 °F, the Type III portland cement may be replaced with Type I or II portland cement.
 - (9) The cement shall be a rapid hardening cement from the Department's "Approved List of Packaged, Dry, Rapid Hardening Cementitious Materials for Concrete Repairs" for PP-4 and calcium aluminate cement for PP-5.
 - (10) For Class PP concrete used in bridge deck patching, the aggregate gradation shall be CA 13, CA 14, or CA 16, except CA 11 may be used for full-depth patching. In addition, the mix design shall have 72 hours to obtain a 4,000 psi compressive or 675 psi flexural strength for all PP mix designs.
 - (11) The nominal maximum size permitted is 3/4 in. Nominal maximum size is defined as the largest sieve which retains any of the aggregate sample particles.
 - (12) The concrete mix shall be designed to remain fluid throughout the anticipated duration of the pour plus one hour. At the Engineer's discretion, the Contractor may be required to conduct a minimum 2 cu yd trial batch to verify the mix design.
 - (13) CA 3 or CA 5 may be used when the nominal maximum size does not exceed two-thirds the clear distance between parallel reinforcement bars, or between the reinforcement bar and the form. Nominal maximum size is defined in Note 11.
 - (14) Alternate combinations of gradations sizes may be used with the approval of the Engineer. Refer also to Article 1004.02(d) for additional information on combining sizes.

Class of Conc.	Use	Specification Section Reference	Cement Factor kg/cu m (3)		Water / Cement Ratio kg/kg	Slump mm (4)	Mix Design Compressive Strength (Flexural Strength) kPa, minimum			Air Content %	Coarse Aggregate Gradations (14)
			Min.	Max			3	14	28		
PV	Pavement	420 or 421									
	Base Course	353									
	Base Course Widening	354									
	Driveway Pavement	423	335 (1)	418	0.32 - 0.42	50 - 100 (5)	Ty III 24,000 (4500)	24,000 (4500)	5.0 - 8.0	CA 5 & CA 7, CA 5 & CA 11, CA 7, CA 11, or CA 14	
	Shoulders	483	360 (2)								
PP	Shoulder Curb	662									
	Pavement Patching										
	Bridge Deck Patching (10)	442									
	PP-1		385 (Ty III)	445 (Ty III)	0.32 - 0.44	50 - 100	at 48 hours	22,100 (4150)	4.0 - 7.0	CA 7, CA 11, CA 13, CA 14, or CA 16	
	PP-2		365 (Ty III)	425 (Ty III)	0.32 - 0.38	50 - 150	at 24 hours	Article 701.17(e)(3)b.	4.0 - 6.0		
RR	PP-3		435 (Ty III)	435	0.32 - 0.35	50 - 100	at 16 hours				
	PP-4		435 (Ty III) (8)	435 (Ty III) (8)	0.32 - 0.50	50 - 150	at 8 hours				
	PP-5		355 (9)	370 (9)	0.32 - 0.40	50 - 200	at 4 hours				
			400 (9)	400 (9)							
			385 (Ty III)	445 (Ty III)	0.32 - 0.44	50 - 100	24,000 (4500) at 48 hours		4.0 - 7.0	CA 7, CA 11, or CA 14	
BS	Railroad Crossing	422	360	418	0.32 - 0.44	50 - 100 (5)	27,500 (4650)		5.0 - 8.0	CA 7, CA 11, or CA 14 (7)	
	Bridge Superstructure Bridge Approach Slab	503									
PC	Various Precast Concrete Items										
	Wet Cast Dry Cast	1042	335 (Ty III)	418 (Ty III)	0.32 - 0.44	25 - 100	See Section 1042		5.0 - 8.0	CA 7, CA 11, CA 13, CA 14, CA 16, or CA 7 & CA 16	
PS	Precast Prestressed Members	504	335	418	0.32 - 0.44	25 - 100			N/A	CA 11 (11), CA 13, CA 14 (11), or CA 16	
	Precast Prestressed Piles and Extensions	512	335 (Ty III)	418 (Ty III)	0.32 - 0.44	25 - 100		Plans 34,500	5.0 - 8.0		
	Precast Prestressed Sight Screen	639						24,000			

TABLE 1. CLASSES OF CONCRETE AND MIX DESIGN CRITERIA (metric)											
Class of Conc.	Use	Specification Section Reference	Cement Factor kg/cu m (3)		Water / Cement Ratio kg/kg	Sump mm (4)	Mix Design Compressive Strength (Flexural Strength) kPa, minimum			Air Content %	Coarse Aggregate Gradations (14)
			Min.	Max			3 Days	14 Days	28 Days		
DS	Drilled Shaft (12) Metal Shell Piles (12) Sign Structures Drilled Shaft (12) Light Tower Foundation (12)	516 512 734 837	395	418	0.32 - 0.44	150 - 200 (6)	27,500 (4650)		5.0 - 8.0	CA 13, CA 14, CA 16, or a blend of these gradations.	
SC	Seal Coat	503	335 (1) 360 (2)	418	0.32 - 0.44	75 - 125	24,000 (4500)		Optional 6.0 max.	CA 3 & CA 7, CA 3 & CA 11, CA 5 & CA 7, CA 7 & CA 11, CA 7, or CA 11	
SI	Structures (except Superstructure) Sidewalk Slope Wall Encasement Box Culverts End Section and Collar Curb, Gutter, Curb & Gutter, Median, and Paved Ditch Concrete Barrier Sign Structures Spread Footing Concrete Foundation Pole Foundation (12) Traffic Signal Foundation Drilled Shaft (12) Square or Rectangular	503 424 511 512 540 542 606 637 734 836 878	335 (1) 360 (2)	418	0.32 - 0.44	50 - 100 (5)	24,000 (4500)		5.0 - 8.0	CA 3 & CA 7, CA 3 & CA 11, CA 5 & CA 7, CA 5 & CA 11, CA 7, CA 11, CA 13, CA 14, or CA 16 (13)	

Notes:

- (1) Central-mixed.
- (2) Truck-mixed or shrink-mixed. Shrink-mixed concrete will not be permitted for Class PV concrete.
- (3) For Class SC concrete and for any other class of concrete that is to be placed underwater, except Class DS concrete, the cement factor shall be increased by ten percent.
- (4) The maximum slump may be increased to 175 mm when a high range water-reducing admixture is used for all classes of concrete except Class PV, SC, and PP. For Class SC, the maximum slump may be increased to 200 mm. For Class PP-1, the maximum slump may be increased to 150 mm. For Class PS, the 175 mm maximum slump may be increased to 215 mm if the high range water-reducing admixture is the polycarboxylate type.
- (5) The slump range for slipform construction shall be 13 to 40 mm.
- (6) If concrete is placed to displace drilling fluid, or against temporary casing, the slump shall be 200 - 250 mm at the point of placement. If a water-reducing admixture is used in lieu of a high range water-reducing admixture according to Article 1020.05(b)(7), the slump shall be 50 - 100 mm.
- (7) For Class BS concrete used in bridge deck patching, the coarse aggregate gradation shall be CA 13, CA 14, or CA 16, except CA 11 may be used for full-depth patching.
- (8) In addition to the Type III portland cement, 60 kg/cu m of ground granulated blast-furnace slag and 30 kg/cu m of microsilica (silica fume) shall be used. For an air temperature greater than 30 °C, the Type III portland cement may be replaced with Type I or II portland cement.
- (9) The cement shall be a rapid hardening cement from the Department's "Approved List of Packaged, Dry, Rapid Hardening Cementitious Materials for Concrete Repairs" for PP-4 and calcium aluminate cement for PP-5.
- (10) For Class PP concrete used in bridge deck patching, the aggregate gradation shall be CA 13, CA 14, or CA 16, except CA 11 may be used for full-depth patching. In addition, the mix design shall have 72 hours to obtain a 27,500 kPa compressive or 4,650 kPa flexural.
- (11) The nominal maximum size permitted is 19 mm. Nominal maximum size is defined as the largest sieve which retains any of the aggregate sample particles.
- (12) The concrete mix shall be designed to remain fluid throughout the anticipated duration of the pour plus one hour. At the Engineer's discretion, the Contractor may be required to conduct a minimum 1.5 cu m trial batch to verify the mix design.
- (13) CA 3 or CA 5 may be used when the nominal maximum size does not exceed two-thirds the clear distance between parallel reinforcement bars, or between the reinforcement bar and the form. Nominal maximum size is defined in Note 11.
- (14) Alternate combinations of gradation sizes may be used with the approval of the Engineer. Refer also to Article 1004.02(d) for additional information on combining sizes.

1020.05 Other Concrete Criteria. The concrete shall be according to the following.

- (a) Proportioning and Mix Design. For all Classes of concrete, it shall be the Contractors responsibility to determine mix design material proportions and to proportion each batch of concrete. A Level III PCC Technician shall develop the mix design for all Classes of concrete, except Classes PC and PS. The mix design, submittal information, trial batch, and Engineer verification shall be according to the "Portland Cement Concrete Level III Technician" course material.

The Contractor shall provide the mix designs a minimum of 45 calendar days prior to production. More than one mix design may be submitted for each class of concrete.

The Engineer will verify the mix design submitted by the Contractor. Verification of a mix design shall in no manner be construed as acceptance of any mixture produced. Once a mix design has been verified, the Engineer shall be notified of any proposed changes.

Tests performed at the jobsite will determine if a mix design can meet specifications. If the tests indicate it cannot, the Contractor shall make adjustments to a mix design, or submit a new mix design if necessary, to comply with the specifications.

- (b) Admixtures. The Contractor shall be responsible for using admixtures and determining dosages for all Classes of concrete, cement aggregate mixture II, and controlled low-strength material that will produce a mixture with suitable workability, consistency, and plasticity. In addition, admixture dosages shall result in the mixture meeting the specified plastic and hardened properties. The Contractor shall obtain approval from the Engineer to use an accelerator when the concrete temperature is greater than 60 °F (16 °C). However, this accelerator approval will not be required for Class PP, RR, PC, and PS concrete. The accelerator shall be the non-chloride type unless otherwise specified in the contract plans.

The Department will maintain an Approved List of Corrosion Inhibitors. Corrosion inhibitor dosage rates shall be according to Article 1020.05(b)(10). For information on approved controlled low-strength material air-entraining admixtures, refer to Article 1019.02. The Department will also maintain an Approved List of Concrete Admixtures, and an admixture technical representative shall be consulted by the Contractor prior to the pour when determining an admixture dosage from this list or when making minor admixture dosage adjustments at the jobsite. The dosage shall be within the range indicated on the approved list unless the influence by other admixtures, jobsite conditions (such as a very short haul time), or other circumstances warrant a dosage outside the range. The Engineer shall be notified when a dosage is proposed outside the range. To determine an admixture dosage, air temperature, concrete temperature, cement source and quantity, finely divided mineral sources and quantity, influence of other admixtures, haul time, placement conditions, and other factors as appropriate shall be considered. The Engineer may request the Contractor to have a batch of concrete mixed in the lab or field to verify the admixture dosage is correct. An admixture dosage or combination of admixture dosages shall not delay the initial set of concrete by more

than one hour. When a retarding admixture is required or appropriate for a bridge deck or bridge deck overlay pour, the initial set time shall be delayed until the deflections due to the concrete dead load are no longer a concern for inducing cracks in the completed work. However, a retarding admixture shall not be used to further extend the pour time and justify the alteration of a bridge deck pour sequence.

When determining water in admixtures for water/cement ratio, the Contractor shall calculate 70 percent of the admixture dosage as water, except a value of 50 percent shall be used for a latex admixture used in bridge deck latex concrete overlays.

The sequence, method, and equipment for adding the admixtures shall be approved by the Engineer. Admixtures shall be added to the concrete separately. An accelerator shall always be added prior to a high range water-reducing admixture, if both are used.

Admixture use shall be according to the following.

- (1) When the atmosphere or concrete temperature is 65 °F (18 °C) or higher, a retarding admixture shall be used in the Class BS concrete and concrete bridge deck overlays. The proportions of the ingredients of the concrete shall be the same as without the retarding admixture, except that the amount of mixing water shall be reduced, as may be necessary, in order to maintain the consistency of the concrete as required. In addition, a high range water-reducing admixture shall be used in bridge deck concrete. At the option of the Contractor, a water-reducing admixture may be used with the high range water-reducing admixture in Class BS concrete.
- (2) At the Contractor's option, admixtures in addition to an air-entraining admixture may be used for Class PP-1 or RR concrete. When the air temperature is less than 55 °F (13 °C) and an accelerator is used, the non-chloride accelerator shall be calcium nitrite.
- (3) When Class C fly ash or ground granulated blast-furnace slag is used in Class PP-1 or RR concrete, a water-reducing or high range water-reducing admixture shall be used.
- (4) For Class PP-2 or PP-3 concrete, a non-chloride accelerator followed by a high range water-reducing admixture shall be used, in addition to the air-entraining admixture. The Contractor has the option to use a water-reducing admixture with the high range water-reducing admixture. For Class PP-3 concrete, the non-chloride accelerator shall be calcium nitrite. For Class PP-2 concrete, the non-chloride accelerator shall be calcium nitrite when the air temperature is less than 55 °F (13 °C).
- (5) For Class PP-4 concrete, a high range water-reducing admixture shall be used in addition to the air-entraining admixture. The Contractor has the option to use a water-reducing admixture with the high range water-reducing admixture. An accelerator shall not be used. For stationary or truck-mixed concrete, a retarding

admixture shall be used to allow for haul time. The Contractor has the option to use a mobile portland cement concrete plant, but a retarding admixture shall not be used unless approved by the Engineer.

For PP-5 concrete, a non-chloride accelerator, high range water-reducing admixture, and air-entraining admixture shall be used. The accelerator, high range water-reducing admixture, and air-entraining admixture shall be per the Contractor's recommendation and dosage. The approved list of concrete admixtures shall not apply. A mobile portland cement concrete plant shall be used to produce the patching mixture.

- (6) When a calcium chloride accelerator is specified in the contract, the maximum chloride dosage shall be 1.0 quart (1.0 L) of solution per 100 lb (45 kg) of cement. The dosage may be increased to a maximum 2.0 quarts (2.0 L) per 100 lb (45 kg) of cement if approved by the Engineer. When a calcium chloride accelerator for Class PP-2 concrete is specified in the contract, the maximum chloride dosage shall be 1.3 quarts (1.3 L) of solution per 100 lb (45 kg) of cement. The dosage may be increased to a maximum 2.6 quarts (2.6 L) per 100 lb (45 kg) of cement if approved by the Engineer.
- (7) For Class DS concrete a retarding admixture and a high range water-reducing admixture shall be used. For dry excavations that are 10 ft (3 m) or less, the high range water-reducing admixture may be replaced with a water-reducing admixture if the concrete is vibrated. The use of admixtures shall take into consideration the slump loss limits specified in Article 516.12 and the fluidity requirement in Article 1020.04 (Note 12).
- (8) At the Contractor's option, when a water-reducing admixture or a high range water-reducing admixture is used for Class PV, PP-1, RR, SC, and SI concrete, the cement factor may be reduced a maximum 0.30 hundredweight/cu yd (18 kg/cu m). However, a cement factor reduction will not be allowed for concrete placed underwater.
- (9) When Type F or Type G high range water-reducing admixtures are used, the initial slump shall be a minimum of 1 1/2 in. (40 mm) prior to addition of the Type F or Type G admixture, except as approved by the Engineer.
- (10) When specified, a corrosion inhibitor shall be added to the concrete mixture utilized in the manufacture of precast, prestressed concrete members and/or other applications. It shall be added, at the same rate, to all grout around post-tensioning steel when specified.

When calcium nitrite is used, it shall be added at the rate of 4 gal/cu yd (20 L/cu m), and shall be added to the mix immediately after all compatible admixtures have been introduced to the batch.

When Rheocrete 222+ is used, it shall be added at the rate of 1.0 gal/cu yd (5.0 L/cu m), and the batching sequence shall be according to the manufacturer's instructions.

(c) Finely Divided Minerals. Use of finely divided minerals shall be according to the following.

(1) Fly Ash. At the Contractor's option, fly ash from approved sources may partially replace portland cement in cement aggregate mixture II, Class PV, PP-1, PP-2, RR, BS, PC, PS, DS, SC, and SI concrete.

The use of fly ash shall be according to the following.

- a. Measurements of fly ash and portland cement shall be rounded up to the nearest 5 lb (2.5 kg).
- b. When Class F fly ash is used in cement aggregate mixture II, Class PV, BS, PC, PS, DS, SC, and SI concrete, the amount of portland cement replaced shall not exceed 25 percent by weight (mass).
- c. When Class C fly ash is used in cement aggregate mixture II, Class PV, PP-1, PP-2, RR, BS, PC, PS, DS, SC, and SI concrete, the amount of portland cement replaced shall not exceed 30 percent by weight (mass).
- d. Fly ash may be used in concrete mixtures when the air temperature is below 40 °F (4 °C), but the Engineer may request a trial batch of the concrete mixture to show the mix design strength requirement will be met.

(2) Ground Granulated Blast-Furnace (GGBF) Slag. At the Contractor's option, GGBF slag may partially replace portland cement in concrete mixtures, for Class PV, PP-1, PP-2, RR, BS, PC, PS, DS, SC, and SI concrete. For Class PP-3 concrete, GGBF slag shall be used according to Article 1020.04.

The use of GGBF slag shall be according to the following.

- a. Measurements of GGBF slag and portland cement shall be rounded up to the nearest 5 lb (2.5 kg).
- b. When GGBF slag is used in Class PV, PP-1, PP-2, RR, BS, PC, PS, DS, SC and SI concrete, the amount of portland cement replaced shall not exceed 35 percent by weight (mass).
- c. GGBF slag may be used in concrete mixtures when the air temperature is below 40 °F (4 °C), but the Engineer may request a trial batch of the concrete mixture to show the mix design strength requirement will be met.

- (3) Microsilica. At the Contractor's option, microsilica may be added at a maximum of 5.0 percent by weight (mass) of the cement and finely divided minerals summed together.

Microsilica shall be used in Class PP-3 concrete according to Article 1020.04.

- (4) High Reactivity Metakaolin (HRM). At the Contractor's option, HRM may be added at a maximum of 5.0 percent by weight (mass) of the cement and finely divided minerals summed together.
- (5) Mixtures with Multiple Finely Divided Minerals. Except as specified for Class PP-3 concrete, the Contractor has the option to use more than one finely divided mineral in Class PV, PP-1, PP-2, RR, BS, PC, PS, DS, SC, and SI concrete as follows.
- a. The mixture shall contain a maximum of two finely divided minerals. The finely divided mineral in portland-pozzolan cement or portland blast-furnace slag cement shall count toward the total number of finely divided minerals allowed. The finely divided minerals shall constitute a maximum of 35.0 percent of the total cement plus finely divided minerals. The fly ash portion shall not exceed 30.0 percent for Class C fly ash or 25.0 percent for Class F fly ash. The Class C and F fly ash combination shall not exceed 30.0 percent. The ground granulated blast-furnace slag portion shall not exceed 35.0 percent. The microsilica or high-reactivity metakaolin portion used together or separately shall not exceed ten percent. The finely divided mineral in the portland-pozzolan cement or portland blast-furnace slag blended cement shall apply to the maximum 35.0 percent.
 - b. Central Mixed. For Class PV, SC, and SI concrete, the mixture shall contain a minimum of 565 lbs/cu yd (335 kg/cu m) of cement and finely divided minerals summed together. If a water-reducing or high-range water-reducing admixture is used, the Contractor has the option to use a minimum of 535 lbs/cu yd (320 kg/cu m).
 - c. Truck-Mixed or Shrink-Mixed. For Class PV (only truck-mixed permitted), SC, and SI concrete, the mixture shall contain a minimum of 605 lbs/cu yd (360 kg/cu m) of cement and finely divided minerals summed together. If a water-reducing or high-range water-reducing admixture is used, the Contractor has the option to use a minimum of 575 lbs/cu yd (345 kg/cu m).
 - d. Central-Mixed, Truck-Mixed or Shrink-Mixed. For Class PP-1 and RR concrete, the mixture shall contain a minimum of 650 lbs/cu yd (385 kg/cu m) of cement and finely divided minerals summed together. For Class PP-1 and RR concrete using Type III portland cement, the mixture shall contain a minimum of 620 lbs/cu yd (365 kg/cu m).

For Class PP-2 concrete, the mixture shall contain a minimum of 735 lbs/cu yd (435 kg/cu m) of cement and finely divided minerals summed together. For Class BS concrete, the mixture shall contain a minimum of 605 lbs/cu yd (360 kg/cu m). For Class DS concrete, the mixture shall contain a minimum of 665 lbs/cu yd (395 kg/cu m).

If a water-reducing or high range water-reducing admixture is used in Class PP-1 and RR concrete, the Contractor has the option to use a minimum of 620 lbs/cu yd (365 kg/cu m) of cement and finely divided minerals summed together. If a water-reducing or high-range water-reducing admixture is used with Type III portland cement in Class PP-1 and RR concrete, the Contractor has the option to use a minimum of 590 lbs/cu yd (350 kg/cu m).

- e. Central-Mixed or Truck-Mixed. For Class PC and PS concrete, the mixture shall contain a minimum of 565 lbs/cu yd (335 kg/cu m) of cement and finely divided minerals summed together.
 - f. The mixture shall contain a maximum of 705 lbs/cu yd (418 kg/cu m) of cement and finely divided mineral(s) summed together for Class PV, BS, PC, PS, DS, SC, and SI concrete. For Class PP-1 and RR concrete, the mixture shall contain a maximum of 750 lbs/cu yd (445 kg/cu m). For Class PP-1 and RR concrete using Type III portland cement, the mixture shall contain a maximum of 720 lbs/cu yd (425 kg/cu m). For Class PP-2 concrete, the mixture shall contain a maximum of 735 lbs/cu yd (435 kg/cu m).
 - g. For Class SC concrete and for any other class of concrete that is to be placed underwater, except Class DS concrete, the allowable cement and finely divided minerals summed together shall be increased by ten percent.
 - h. The combination of cement and finely divided minerals shall comply with Article 1020.05(d).
- (d) Alkali-Silica Reaction. For cast-in-place (includes cement aggregate mixture II), precast, and precast prestressed concrete, one of the mixture options provided in Article 1020.05(d)(2) shall be used to reduce the risk of a deleterious alkali-silica reaction in concrete exposed to humid or wet conditions. The mixture options are not intended or adequate for concrete exposed to potassium acetate, potassium formate, sodium acetate, or sodium formate. The mixture options will not be required for the dry environment (humidity less than 60 percent) found inside buildings for residential or commercial occupancy.

The mixture options shall not apply to concrete revetment mats, insertion lining of pipe culverts, portland cement mortar fairing course, controlled low-strength material, miscellaneous grouts that are not prepackaged, Class PP-3 concrete, Class PP-4 concrete, and Class PP-5 concrete.

- (1) Aggregate Groups. Each combination of aggregates used in a mixture will be assigned to an aggregate group. The point at which the coarse aggregate and fine aggregate expansion values intersect in the following table will determine the group.

Aggregate Groups			
Coarse Aggregate or Coarse Aggregate Blend ASTM C 1260 Expansion	Fine Aggregate Or Fine Aggregate Blend ASTM C 1260 Expansion		
	≤0.16%	>0.16% - 0.27%	>0.27%
≤0.16%	Group I	Group II	Group III
>0.16% - 0.27%	Group II	Group II	Group III
>0.27%	Group III	Group III	Group IV

- (2) Mixture Options. Based upon the aggregate group, the following mixture options shall be used. However, the Department may prohibit a mixture option if field performance shows a deleterious alkali-silika reaction or Department testing indicates the mixture may experience a deleterious alkali-silica reaction.

Group I – Mixture options are not applicable. Use any cement or finely divided mineral.

Group II – Mixture options 1, 2, 3, 4, or 5 shall be used.

Group III – Mixture options 1, combine 2 with 3, 4 or 5 shall be used.

Group IV – Mixture options 1, combine 2 with 4, or 5 shall be used.

- a. Mixture Option 1. The coarse or fine aggregates shall be blended to place the material in a group that will allow the selected cement or finely divided mineral to be used. Coarse aggregate may only be blended with another coarse aggregate. Fine aggregate may only be blended with another fine aggregate. Blending of coarse with fine aggregate to place the material in another group will not be permitted.

When a coarse for fine aggregate is blended, the weighted expansion value shall be calculated separately for the coarse and fine aggregate as follows:

$$\text{Weighted Expansion Value} = (a/100 \times A) + (b/100 \times B) + (c/100 \times C) + \dots$$

Where: a, b, c... = percentage of aggregate in the blend;
A, B, C... = expansion value for that aggregate.

- b. Mixture Option 2. A finely divided mineral shall be used as described in 1), 2), 3), or 4) that follow.

1. Class F Fly Ash. For cement aggregate mixture II, Class PV, BS, PC, PS, MS, DS, SC and SI concrete, the Class F fly ash shall be a minimum 25.0 percent by weight (mass) of the cement and finely divided minerals summed together.

If the maximum total equivalent available alkali content ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$) exceeds 4.50 percent for the Class F fly ash, it may be used only if it complies with Mixture Option 5.

2. Class C Fly Ash. For cement aggregate mixture II, Class PV, PP-1, PP-2, RR, BS, PC, PS, DS, SC, and SI concrete, Class C fly ash shall be a minimum of 25.0 percent by weight (mass) of the cement and finely divided minerals summed together.

If the maximum total equivalent available alkali content ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$) exceeds 4.50 percent or the calcium oxide exceeds 26.50 percent for the Class C fly ash, it may be used only per Mixture Option 5.

3. Ground Granulated Blast-Furnace Slag. For Class PV, PP-1, PP-2, RR, BS, PC, PS, DS, SC, and SI concrete, ground granulated blast-furnace slag shall be a minimum of 25.0 percent by weight (mass) of the cement and finely divided minerals summed together.

If the maximum total equivalent available alkali content ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$) exceeds 1.00 percent for the ground granulated blast-furnace slag, it may be used only per Mixture Option 5.

4. Microsilica or High Reactivity Metakaolin, Microsilica solids or high reactivity metakaolin shall be a minimum 5.0 percent by weight (mass) of the cement and finely divided minerals summed together.

If the maximum total equivalent available alkali content ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$) exceeds 1.00 percent for the Microsilica or High Reactivity Metakaolin, it may be used only if it complies with Mixture Option 5.

- c. Mixture Option 3. The cement used shall have a maximum total equivalent alkali content ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$) of 0.60 percent. When aggregate in Group II is involved and the Contractor desires to use a finely divided mineral, any finely divided mineral may be used with the cement unless the maximum total equivalent available alkali content ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$) exceeds 4.50 percent for the fly ash; or 1.00 percent for the ground granulated blast-furnace slag, microsilica or high reactivity metakaolin. If the alkali content is exceeded, the finely divided mineral may be used only per Mixture Option 5.
- d. Mixture option 4. The cement used shall have a maximum total equivalent alkali content ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$) of 0.45 percent. When aggregate in Group II or III is

involved and the Contractor desires to use a finely divided mineral, any finely divided mineral may be used with the cement unless the maximum total equivalent available alkali content ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$) exceeds 4.50 percent for the fly ash; or 1.00 percent for the ground granulated blast-furnace slag, microsilica, or high reactivity metakaolin. If the alkali content is exceeded, the finely divided mineral may be used only per Mixture Option 5.

- e. Mixture Option 5. The proposed cement or finely divided mineral may be used if the ASTM C 1567 expansion value is ≤ 0.16 percent when performed on the aggregate in the concrete mixture with the highest ASTM C 1260 test result. The laboratory performing the ASTM C 1567 test shall be approved by the Department according to the current Bureau of Materials and Physical Research Policy Memorandum "Minimum Laboratory Requirements for Alkali-Silica Reactivity (ASR) Testing". The ASTM C 1567 test will be valid for two years, unless the Engineer determines the materials have changed significantly. For latex concrete, the ASTM C 1567 test shall be performed without the latex. The 0.20 percent autoclave expansion limit in ASTM C 1567 shall not apply.

If during the two year time period the Contractor needs to replace the cement, and the replacement cement has an equal or lower total equivalent alkali content ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$), a new ASTM C 1567 test will not be required.

The Engineer reserved the right to verify a Contractor's ASTM C 1567 test result. When the Contractor performs the test, a split sample may be requested by the Engineer. The Engineer may also independently obtain a sample at any time. The proposed cement or finely divided mineral will not be allowed for use if the Contractor or Engineer obtains an expansion value greater than 0.16 percent.

1020.06 Water/Cement Ratio. The water/cement ratio shall be determined on a weight (mass) basis. When a maximum water/cement ratio is specified, the water shall include mixing water, water in admixtures, free moisture on the aggregates, and water added at the jobsite. The quantity of water may be adjusted within the limit specified to meet slump requirements.

When fly ash, ground granulated blast-furnace slag, high-reactivity metakaolin, or microsilica (silica fume) are used in a concrete mix, the water/cement ratio will be based on the total cement and finely divided minerals contained in the mixture.

1020.07 Slump. The slump shall be determined according to Illinois Modified AASHTO T 119.

If the measured slump falls outside the limits specified, a check test will be made. In the event of a second failure, the Engineer may refuse to permit the use of the batch of concrete represented.

If the Contractor is unable to add water to prepare concrete of the specified slump without exceeding the maximum design water/cement ratio, additional cement or water-reducing admixture shall be added.

1020.08 Air Content. The air content shall be determined according to Illinois Modified AASHTO T 152 or Illinois Modified AASHTO T 196. The air-entrainment shall be obtained by the use of cement with an approved air-entraining admixture added during the mixing of the concrete or the use of air-entraining cement.

If the air-entraining cement furnished is found to produce concrete having an air content outside the limits specified, its use shall be discontinued immediately and the Contractor shall provide other air-entraining cement which will produce air contents within the specified limits.

If the air content obtained is above the specified maximum limit at the jobsite, the Contractor, with the Engineer's approval, may add to the truck mixer non air-entraining cement in the proportion necessary to bring the air content within the specified limits, or the concrete may be further mixed, within the limits of time and revolutions specified, to reduce the air content. If the air content obtained is below the specified minimum limit, the Contractor may add to the concrete a sufficient quantity of an approved air-entraining admixture at the jobsite to bring the air content within the specified limits.

1020.09 Strength Tests. The specimens shall be molded and cured according to Illinois Modified AASHTO T 23. Specimens shall be field cured with the construction item as specified in Illinois Modified AASHTO T 23. The compressive strength shall be determined according to Illinois Modified AASHTO T 22. The flexural strength shall be determined according to Illinois Modified AASHTO T 177.

Except for Class PC and PS concrete, the Contractor shall transport the strength specimens from the site of the work to the field laboratory or other location as instructed by the Engineer. During transportation in a suitable light truck, the specimens shall be embedded in straw, burlap, or other acceptable material in a manner meeting with the approval of the Engineer to protect them from damage; care shall be taken to avoid impacts during hauling and handling. For strength specimens, the Contractor shall provide a water storage tank for curing.

1020.10 Handling, Measuring, and Batching Materials. Aggregates shall be handled in a manner to prevent mixing with soil and other foreign material.

Aggregates shall be handled in a manner which produces a uniform gradation, before placement in the plant bins. Aggregates delivered to the plant in a nonuniform gradation condition shall be stockpiled. The stockpiled aggregate shall be mixed uniformly before placement in the plant bins.

Aggregates shall have a uniform moisture content before placement in the plant bins. This may require aggregates to be stockpiled for 12 hours or more to allow drainage, or water added to the stockpile, or other methods approved by the Engineer. Moisture content requirements for crushed slag or lightweight aggregate shall be according to Article 1004.01(e).

Aggregates, cement, and finely divided minerals shall be measured by weight (mass). Water and admixtures shall be measured by volume or weight (mass).

The Engineer may permit aggregates, cement, and finely divided minerals to be measured by volume for small isolated structures and for miscellaneous items. Aggregates, cement, and finely divided minerals shall be measured individually. The volume shall be based upon dry, loose materials.

1020.11 Mixing Portland Cement Concrete. The mixing of concrete shall be according to the following.

- (a) Ready-Mixed Concrete. Ready-mixed concrete is central-mixed, truck-mixed, or shrink-mixed concrete transported and delivered in a plastic state ready for placement in the work and shall be according to the following.
 - (1) Central-Mixed Concrete. Central-mixed concrete is concrete which has been completely mixed in a stationary mixer and delivered in a truck agitator, a truck mixer operating at agitating speed, or a nonagitator truck.

The stationary mixer shall operate at the drum speed for which it was designed. The batch shall be charged into the drum so that some of the water shall enter in advance of the cement, finely divided minerals, and aggregates. The flow of the water shall be uniform and all water shall be in the drum by the end of the first 15 seconds of the mixing period. Water shall begin to enter the drum from zero to two seconds in advance of solid material and shall stop flowing within two seconds of the beginning of mixing time.

Some coarse aggregate shall enter in advance of other solid materials. For the balance of the charging time for solid materials, the aggregates, finely divided minerals, and cement (to assure thorough blending) shall each flow at acceptably uniform rates, as determined by visual observation. Coarse aggregate shall enter two seconds in advance of other solid materials and a uniform rate of flow shall continue to within two seconds of the completion of charging time.

The entire contents of the drum, or of each single compartment of a multiple-drum mixer, shall be discharged before the succeeding batch is introduced.

The volume of concrete mixed per batch shall not exceed the mixer's rated capacity as shown on the standard rating plate on the mixer by more than ten percent.

The minimum mixing time shall be 75 seconds for a stationary mixer having a capacity greater than 2 cu yd (1.5 cu m). For a mixer with a capacity equal to or less than 2 cu yd (1.5 cu m) the mixing time shall be 60 seconds. Transfer time in multiple drum mixers is included in the mixing time. Mixing time shall begin when all materials are in the mixing compartment and shall end when the discharge of any

part of the batch is started. The required mixing times will be established by the Engineer for all types of stationary mixers.

When central-mixed concrete is to be transported in a truck agitator or a truck mixer, the stationary-mixed batch shall be transferred to the agitating unit without delay and without loss of any portion of the batch. Agitating shall start immediately thereafter and shall continue without interruption until the batch is discharged from the agitator. The ingredients of the batch shall be completely discharged from the agitator before the succeeding batch is introduced. Drums and auxiliary parts of the equipment shall be kept free from accumulations of materials.

The vehicles used for transporting the mixed concrete shall be of such capacity, or the batches shall be so proportioned, that the entire contents of the mixer drum can be discharged into each vehicle load.

- (2) Truck-Mixed Concrete. Truck-mixed concrete is completely mixed and delivered in a truck mixer. When the mixer is charged with fine and coarse aggregates simultaneously, not less than 60 nor more than 100 revolutions of the drum or blades at mixing speed shall be required, after all of the ingredients including water are in the drum. When fine and coarse aggregates are charged separately, not less than 70 revolutions will be required. Additional mixing beyond 100 revolutions shall be at agitating speed unless additions of water, admixtures, cement, or other materials are made at the jobsite. The mixing operation shall begin immediately after the cement and water, or the cement and wet aggregates, come in contact. The ingredients of the batch shall be completely discharged from the drum before the succeeding batch is introduced. The drum and auxiliary parts of the equipment shall be kept free from accumulations of materials. If additional water or an admixture is added at the jobsite, the concrete batch shall be mixed a minimum of 40 additional revolutions after each addition.
- (3) Shrink-Mixed Concrete. Shrink-mixed concrete is mixed partially in a stationary mixer and completed in a truck mixer for delivery. The mixing time of the stationary mixer may be reduced to a minimum of 30 seconds to intermingle the ingredients, before transferring to the truck mixer. All ingredients for the batch shall be in the stationary mixer and partially mixed before any of the mixture is discharged into the truck mixer. The partially mixed batch shall be transferred to the truck mixer without delay and without loss of any portion of the batch, and mixing in the truck mixer shall start immediately. The mixing time in the truck mixer shall be not less than 50 nor more than 100 revolutions of the drum or blades at mixing speed. Additional mixing beyond 100 revolutions shall be at agitating speed, unless additions of water, admixtures, cement, or other materials are made at the jobsite. Units designed as agitators shall not be used for shrink mixing. The ingredients of the batch shall be completely discharged from the drum before the succeeding batch is introduced. The drum and auxiliary parts of the equipment shall be kept free from accumulations of materials. If additional water or an admixture is added at the jobsite, the concrete batch shall be mixed a minimum of 40 additional revolutions after each addition.

- (4) **Mixing Water.** Wash water shall be completely discharged from the drum or container before a batch is introduced. All mixing water shall be added at the plant and any adjustment of water at the jobsite by the Contractor shall not exceed the specified maximum water/cement ratio or slump. If strength specimens have been made for a batch of concrete, and subsequently during discharge there is more water added, additional strength specimens shall be made for the batch of concrete. No additional water may be added at the jobsite to central-mixed concrete if the mix design has less than 565 lbs/cu yd (335 kg/cu m) of cement and finely divided minerals summed together.
- (5) **Mixing and Agitating Speeds.** The mixing or agitating speeds used for truck mixers or truck agitators shall be per the manufacturer's rating plate.
- (6) **Capacities.** The volume of plastic concrete in a given batch will be determined according to AASHTO T 121, based on the total weight (mass) of the batch, determined either from the weight (masses) of all materials, including water, entering the batch or directly from the net weight (mass) of the concrete in the batch as delivered.

The volume of mixed concrete in truck mixers or truck agitators shall in no case be greater than the rated capacity determined according to the Truck Mixer, Agitator, and Front Discharge Concrete Carrier Standards of the Truck Mixer Manufacturer's Bureau, as shown by the rating plate attached to the truck. If the truck mixer does not have a rating plate, the volume of mixed concrete shall not exceed 63 percent of the gross volume of the drum or container, disregarding the blades. For truck agitators, the value is 80 percent.

- (7) **Time of Haul.** Haul time shall begin when the delivery ticket is stamped. The delivery ticket shall be stamped no later than five minutes after the addition of the mixing water to the cement, or after the addition of the cement to the aggregate when the combined aggregates contain free moisture in excess of two percent by weight (mass). If more than one batch is required for charging a truck using a stationary mixer, the time of haul shall start with mixing of the first batch. Haul time shall end when the truck is emptied for incorporation of the concrete into the work.

The time elapsing from when water is added to the mix until it is deposited in place at the site of the work shall not exceed 30 minutes when the concrete is transported in nonagitating trucks.

The maximum haul time for concrete transported in truck mixers or truck agitators shall be according to the following.

Concrete Temperature at Point of Discharge °F (°C)	Haul Time	
	Hours	Minutes
50-64 (10-17.5)	1	30

>64 (>17.5) - without retarder	1	0
>64 (>17.5) - with retarder	1	30

To encourage start-up testing for mix adjustments at the plant, the first two trucks will be allowed an additional 15 minutes haul time whenever such testing is performed.

For a mixture which is not mixed on the jobsite, a delivery ticket shall be required for each load. The following information shall be recorded on each delivery ticket: (1) ticket number; (2) name of producer and plant location; (3) contract number; (4) name of Contractor; (5) stamped date and time batched; (6) truck number; (7) quantity batched; (8) amount of admixture(s) in the batch; (9) amount of water in the batch; and (10) Department mix design number.

For concrete mixed in jobsite stationary mixers, the above delivery ticket may be waived, but a method of verifying the haul time shall be established to the satisfaction of the Engineer.

- (8) Production and Delivery. The production of ready-mixed concrete shall be such that the operations of placing and finishing will be continuous insofar as the job operations require. The Contractor shall be responsible for producing concrete that will have the required workability, consistency, and plasticity when delivered to the work. Concrete which is unsuitable for placement as delivered will be rejected. The Contractor shall minimize the need to adjust the mixture at the jobsite, such as adding water, admixtures, and cement prior to discharging.
- (9) Use of Multiple Plants in the Same Construction Item. The Contractor may simultaneously use central-mixed, truck-mixed, and shrink-mixed concrete from more than one plant, for the same construction item, on the same day, and in the same pour. However, the following criteria shall be met.
 - a. Each plant shall use the same cement, finely divided minerals, aggregates, admixtures, and fibers.
 - b. Each plant shall use the same mix design. However, material proportions may be altered slightly in the field to meet slump and air content criteria. Field water adjustments shall not result in a difference that exceeds 0.02 between plants for water/cement ratio. The required cement factor for central-mixed concrete shall be increased to match truck-mixed or shrink-mixed concrete, if the latter two types of mixed concrete are used in the same pour.
 - c. The maximum slump difference between deliveries of concrete shall be 3/4 in. (19 mm) when tested at the jobsite. If the difference is exceeded, but test results are within specification limits, the concrete may be used. The Contractor shall take immediate corrective action and shall test subsequent deliveries of concrete until the slump difference is corrected. For each day, the first three truck loads of delivered concrete from each plant shall be tested for slump by the Contractor.

Thereafter, when a specified test frequency for slump is to be performed, it shall be conducted for each plant at the same time.

- d. The maximum air content difference between deliveries of concrete shall be 1.5 percent when tested at the jobsite. If the difference is exceeded, but test results are within specification limits, the concrete may be used. The Contractor shall take immediate corrective action and shall test subsequent deliveries of concrete until the air content difference is corrected. For each day, the first three truck loads of delivered concrete from each plant shall be tested for air content by the Contractor. Thereafter, when a specified test frequency for air content is to be performed, it shall be conducted for each plant at the same time.
 - e. Strength tests shall be performed and taken at the jobsite for each plant. When a specified strength test is to be performed, it shall be conducted for each plant at the same time. The difference between plants for strength shall not exceed 900 psi (6200 kPa) compressive and 90 psi (620 kPa) flexural. If the strength difference requirements are exceeded, the Contractor shall take corrective action.
 - f. The maximum haul time difference between deliveries of concrete shall be 15 minutes. If the difference is exceeded, but haul time is within specification limits, the concrete may be used. The Contractor shall take immediate corrective action and check subsequent deliveries of concrete.
- (b) Class PC Concrete. The concrete shall be central-mixed or truck-mixed. Variations in plastic concrete properties shall be minimized between batches.
- (c) Class PV Concrete. The concrete shall be central-mixed or truck-mixed.

The required mixing time for stationary mixers with a capacity greater than 2 cu yd (1.5 cu m) may be less than 75 seconds upon satisfactory completion of a mixer performance test. Mixer performance tests may be requested by the Contractor when the quantity of concrete to be placed exceeds 50,000 sq yd (42,000 sq m). The testing shall be conducted according to the current Bureau of Materials and Physical Research's Policy Memorandum, "Field Test Procedures for Mixer Performance and Concrete Uniformity Tests".

The Contractor will be allowed to test two mixing times within a range of 50 to 75 seconds. If satisfactory results are not obtained from the required tests, the mixing time shall continue to be 75 seconds for the remainder of the contract. If satisfactory results are obtained, the mixing time may be reduced. In no event will mixing time be less than 50 seconds.

The Contractor shall furnish the labor, equipment, and material required to perform the testing according to the current Bureau of Materials and Physical Research's Policy

Memorandum, "Field Test Procedures for Mixer Performance and Concrete Uniformity Tests".

A contract which has 12 ft (3.6 m) wide pavement or base course, and a continuous length of 1/2 mile (0.8 km) or more, shall have the following additional requirements.

(1) The plant and truck delivery operation shall be able to provide a minimum of 50 cu yd (38 cu m) of concrete per hour.

(2) The plant shall have automatic or semi-automatic batching equipment.

(d) All Other Classes of Concrete. The concrete shall be central-mixed, truck-mixed, or shrink-mixed concrete.

1020.12 Mobile Portland Cement Concrete Plants. The use of a mobile portland cement concrete plant may be approved under the provisions of Article 1020.10 for volumetric proportioning in small isolated structures, thin overlays, and for miscellaneous and incidental concrete items.

The first 1 cu ft (0.03 cu m) of concrete produced may not contain sufficient mortar and shall not be incorporated in the work. The side plate on the cement feeder shall be removed periodically (normally the first time the mixer is used each day) to see if cement is building up on the feed drum.

Sufficient mixing capacity of mixers shall be provided to enable continuous placing and finishing insofar as the job operations and the specifications require.

Slump and air tests made immediately after discharge of the mix may be misleading, since the aggregates may absorb a significant amount of water for four or five minutes after mixing.

1020.13 Curing and Protection. The method of curing, curing period, and method of protection for each type of concrete construction is included in the following Index Table.

INDEX TABLE OF CURING AND PROTECTION OF CONCRETE CONSTRUCTION			
TYPE OF CONSTRUCTION	CURING METHODS	CURING PERIOD DAYS	LOW AIR TEMPERATURE PROTECTION METHODS
Cast-in-Place Concrete ^{11/}			
Pavement			
Shoulder	1020.13(a)(1)(2)(3)(4)(5) ^{3/ 5/}	3	1020.13(c)
Base Course			
Base Course Widening	1020.13(a)(1)(2)(3)(4)(5) ^{2/}	3	1020.13(c)
Driveway			
Median			
Barrier			
Curb			
Gutter	1020.13(a)(1)(2)(3)(4)(5) ^{4/ 5/}	3	1020.13(c) ^{16/}
Curb & Gutter			
Sidewalk			
Slope Wall			
Paved Ditch			
Catch Basin			
Manhole	1020.13(a)(1)(2)(3)(4)(5) ^{4/}	3	1020.13(c)
Inlet			
Valve Vault			
Pavement Patching	1020.13(a)(1)(2)(3)(4)(5) ^{2/}	3 ^{12/}	1020.13(c)
Bridge Deck Patching	1020.13(a)(3)(5)	3 or 7 ^{12/}	1020.13(c)
Railroad Crossing	1020.13(a)(3)(5)	1	1020.13(c)
Piles and Drilled Shafts	1020.13(a)(3)(5)	7	1020.13(d)(1)(2)(3)
Foundations & Footings			
Seal Coat	1020.13(a)(1)(2)(3)(4)(5) ^{4/ 6/}	7	1020.13(d)(1)(2)(3)
Substructure	1020.13(a)(1)(2)(3)(4)(5) ^{1/ 7/}	7	1020.13(d)(1)(2)(3)
Superstructure (except deck)	1020.13(a)(1)(2)(3)(5) ^{8/}	7	1020.13(d)(1)(2)
Deck			
Bridge Approach Slab	1020.13(a)(5)	7	1020.13(d)(1)(2) ^{17/}
Retaining Walls	1020.13(a)(1)(2)(3)(4)(5) ^{1/ 7/}	7	1020.13(d)(1)(2)
Pump Houses	1020.13(a)(1)(2)(3)(4)(5) ^{1/}	7	1020.13(d)(1)(2)
Culverts	1020.13(a)(1)(2)(3)(4)(5) ^{4/ 6/}	7	1020.13(d)(1)(2) ^{18/}
Other Incidental Concrete	1020.13(a)(1)(2)(3)(5)	3	1020.13(c)
Precast Concrete ^{11/}			
Bridge Slabs			
Piles and Pile Caps	1020.13(a)(3)(5) ^{9/ 10/}	As ^{13/}	9/
Other Structural Members		Required	
All Other Precast Items	1020.13(a)(3)(4)(5) ^{2/ 9/ 10/}	As ^{14/}	9/
		Required	
Precast, Prestressed Concrete ^{11/}			
All Items	1020(a)(3)(5) ^{9/ 10/}	Until Strand Tensioning is Released ^{15/}	9/

Notes-General:

- 1/ Type I, membrane curing only
- 2/ Type II, membrane curing only
- 3/ Type III, membrane curing only

- 4/ Type I, II and III membrane curing
- 5/ Membrane Curing will not be permitted between November 1 and April 15.
- 6/ The use of water to inundate foundations and footings, seal coats or the bottom slab of culverts is permissible when approved by the Engineer, provided the water temperature can be maintained at 45 °F (7 °C) or higher.
- 7/ Asphalt emulsion for waterproofing may be used in lieu of other curing methods when specified and permitted according to Article 503.18.
- 8/ On non-traffic surfaces which receive protective coat according to Article 503.19, a linseed oil emulsion curing compound may be used as a substitute for protective coat and other curing methods. The linseed oil emulsion curing compound will be permitted between April 16 and October 31 of the same year, provided it is applied with a mechanical sprayer according to Article 1101.09(b).
- 9/ Steam, supplemental heat, or insulated blankets (with or without steam/supplemental heat) are acceptable and shall be according to the Bureau of Materials and Physical Research's Policy Memorandum "Quality Control/Quality Assurance Program for Precast Concrete Products" and the "Manual for Fabrication of Precast, Prestressed Concrete Products".
- 10/ A moist room according to AASHTO M 201 is acceptable for curing.
- 11/ If curing is required and interrupted because of form removal for cast-in-place concrete items, precast concrete products, or precast prestressed concrete products, the curing shall be resumed within two hours from the start of the form removal.
- 12/ Curing maintained only until opening strength is attained for pavement patching, with a maximum curing period of three days. For bridge deck patching the curing period shall be three days if Class PP concrete is used and 7 days if Class BS concrete is used.
- 13/ The curing period shall end when the concrete has attained the mix design strength. The producer has the option to discontinue curing when the concrete has attained 80 percent of the mix design strength or after seven days. All strength test specimens shall remain with the units and shall be subjected to the same curing method and environmental condition as the units, until the time of testing.
- 14/ The producer shall determine the curing period or may elect to not cure the product. All strength test specimens shall remain with the units and shall be subjected to the same curing method and environmental condition as the units, until the time of testing.

15/ The producer has the option to continue curing after strand release.

16/ When structural steel or structural concrete is in place above slope wall, Article 1020.13(c) shall not apply. The protection method shall be according to Article 1020.13(d)(1).

17/ When Article 1020.13(d)(2) is used to protect the deck, the housing may enclose only the bottom and sides. The top surface shall be protected according to Article 1020.13(d)(1).

18/ For culverts having a waterway opening of 10 sq ft (1 sq m) or less, the culverts may be protected according to Article 1020.13(d)(3).

(a) Methods of Curing. Except as provided for in the Index Table of Curing and Protection of Concrete Construction, curing shall be accomplished by one of the following described methods. When water is required to wet the surface, it shall be applied as a fine spray so that it will not mar or pond on the surface. Except where otherwise specified, the curing period shall be at least 72 hours.

(1) Waterproof Paper Method. The surface of the concrete shall be covered with waterproof paper as soon as the concrete has hardened sufficiently to prevent marring the surface. The surface of the concrete shall be wetted immediately before the paper is placed. The blankets shall be lapped at least 12 in. (300 mm) end to end, and these laps shall be securely weighted with a windrow of earth, or other approved method, to form a closed joint. The same requirements shall apply to the longitudinal laps where separate strips are used for curing edges, except the lap shall be at least 9 in. (225 mm). The edges of the blanket shall be weighted securely with a continuous windrow of earth or any other means satisfactory to the Engineer to provide an air-tight cover. Any torn places or holes in the paper shall be repaired immediately by patches cemented over the openings, using a bituminous cement having a melting point of not less than 180 °F (82 °C). The blankets may be reused, provided they are air-tight and kept serviceable by proper repairs.

A longitudinal pleat shall be provided in the blanket to permit shrinkage where the width of the blanket is sufficient to cover the entire surface. The pleat will not be required where separate strips are used for the edges. Joints in the blanket shall be sewn or cemented together in such a manner that they will not separate during use.

(2) Polyethylene Sheeting Method. The surface of the concrete shall be covered with white polyethylene sheeting as soon as the concrete has hardened sufficiently to prevent marring the surface. The surface of the concrete shall be wetted immediately before the sheeting is placed. The edges of the sheeting shall be weighted securely with a continuous windrow of earth or any other means satisfactory to the Engineer to provide an air-tight cover. Adjoining sheets shall overlap not less than 12 in. (300 mm) and the laps shall be securely weighted with earth, or any other means satisfactory to the Engineer, to provide an air tight cover.

For surface and base course concrete, the polyethylene sheets shall be not less than 100 ft (30 m) in length nor longer than can be conveniently handled, and shall be of such width that, when in place, they will cover the full width of the surface, including the edges, except that separate strips may be used to cover the edges. Any tears or holes in the sheeting shall be repaired. When sheets are no longer serviceable as a single unit, the Contractor may select from such sheets and reuse those which will serve for further applications, provided two sheets are used as a single unit; however, the double sheet units will be rejected when the Engineer deems that they no longer provide an air tight cover.

- (3) Wetted Burlap Method. The surface of the concrete shall be covered with wetted burlap blankets as soon as the concrete has hardened sufficiently to prevent marring the surface. The blankets shall overlap 6 in. (150 mm). At least two layers of wetted burlap shall be placed on the finished surface. The burlap shall be kept saturated by means of a mechanically operated sprinkling system. In place of the sprinkling system, at the Contractor's option, two layers of burlap covered with impermeable covering shall be used. The burlap shall be kept saturated with water. Plastic coated burlap may be substituted for one layer of burlap and impermeable covering.

The blankets shall be placed so that they are in contact with the edges of the concrete, and that portion of the material in contact with the edges shall be kept saturated with water.

- (4) Membrane Curing Method. Membrane curing will not be permitted where a protective coat, concrete sealer, or waterproofing is to be applied, or at areas where rubbing or a normal finish is required, or at construction joints other than those necessary in pavement or base course. Concrete at these locations shall be cured by another method specified in Article 1020.13(a).

After the concrete has been finished and the water sheen has disappeared from the surface, the concrete shall be immediately sealed with membrane curing compound of the type specified. The seal shall be maintained for the specified curing period. The edges of the concrete shall, likewise, be sealed immediately after the forms are removed. Two separate applications, applied at least one minute apart, each at the rate of not less than 1 gal/250 sq ft (0.16 L/sq m) will be required upon the surfaces and edges of the concrete. These applications shall be made with the mechanical equipment specified. Type III compound shall be agitated immediately before and during the application.

At locations where the coating is discontinuous or where pin holes show or where the coating is damaged due to any cause and on areas adjacent to sawed joints, immediately after sawing is completed, an additional coating of membrane curing compound shall be applied at the above specified rate. The equipment used may be of the same type as that used for coating variable widths of pavement. Before the additional coating is applied adjacent to sawed joints, the cut faces of the joint shall be protected by inserting a suitable flexible material in the joint, or placing an

adhesive width of impermeable material over the joint, or by placing the permanent sealing compound in the joint. Material, other than the permanent sealing compound, used to protect cut faces of the joint, shall remain in place for the duration of the curing period. In lieu of applying the additional coating, the area of the sawed joint may be cured according to any other method permitted.

When rain occurs before an application of membrane curing compound has dried, and the coating is damaged, the Engineer may require another application be made in the same manner and at the same rate as the original coat. The Engineer may order curing by another method specified, if unsatisfactory results are obtained with membrane curing compound.

- (5) **Wetted Cotton Mat Method.** After the surface of concrete has been textured or finished, it shall be covered immediately with dry or damp cotton mats. The cotton mats shall be placed in a manner which will not mar the concrete surface. A texture resulting from the cotton mat material is acceptable. The cotton mats shall then be wetted immediately and thoroughly soaked with a gentle spray of water. For bridge decks, a foot bridge shall be used to place and wet the cotton mats.

The cotton mats shall be maintained in a wetted condition until the concrete has hardened sufficiently to place soaker hoses without marring the concrete surface. The soaker hoses shall be placed on top of the cotton mats at a maximum 4 ft (1.2 m) spacing. The cotton mats shall be kept wet with a continuous supply of water for the remainder of the curing period. Other continuous wetting systems may be used if approved by the Engineer.

After placement of the soaker hoses, the cotton mats shall be covered with white polyethylene sheeting or burlap-polyethylene blankets.

For construction items other than bridge decks, soaker hoses or a continuous wetting system will not be required if the alternative method keeps the cotton mats wet. Periodic wetting of the cotton mats is acceptable.

For areas inaccessible to the cotton mats on bridge decks, curing shall be according to Article 1020.13(a)(3).

- (b) **Removing and Replacing Curing Covering.** When curing methods specified above in Article 1020.13(a), (1), (2), or (3) are used for concrete pavement, the curing covering for each day's paving shall be removed to permit testing of the pavement surface with a profilograph or straightedge, as directed by the Engineer.

Immediately after testing, the surface of the pavement shall be wetted thoroughly and the curing coverings replaced. The top surface and the edges of the concrete shall not be left unprotected for a period of more than 1/2 hour.

- (c) Protection of Concrete, Other Than Structures, From Low Air Temperatures. When the official National Weather Service forecast for the construction area predicts a low of 32 °F (0 °C), or lower, or if the actual temperature drops to 32 °F (0 °C), or lower, concrete less than 72 hours old shall be provided at least the following protection.

Minimum Temperature	Protection
25 – 32 °F (-4 – 0 °C)	Two layers of polyethylene sheeting, one layer of polyethylene and one layer of burlap, or two layers of waterproof paper.
Below 25 °F (-4 °C)	6 in. (150 mm) of straw covered with one layer of polyethylene sheeting or waterproof paper.

These protective covers shall remain in place until the concrete is at least 96 hours old. When straw is required on pavement cured with membrane curing compound, the compound shall be covered with a layer of burlap, polyethylene sheeting or waterproof paper before the straw is applied.

After September 15, there shall be available to the work within four hours, sufficient clean, dry straw to cover at least two days production. Additional straw shall be provided as needed to afford the protection required. Regardless of the precautions taken, the Contractor shall be responsible for protection of the concrete placed and any concrete damaged by cold temperatures shall be removed and replaced.

- (d) Protection of Concrete Structures From Low Air Temperatures. When the official National Weather Service forecast for the construction area predicts a low below 45 °F (7 °C), or if the actual temperature drops below 45 °F (7 °C), concrete less than 72 hours old shall be provided protection. Concrete shall also be provided protection when placed during the winter period of December 1 through March 15. Concrete shall not be placed until the materials, facilities, and equipment for protection are approved by the Engineer.

When directed by the Engineer, the Contractor may be required to place concrete during the winter period. When winter construction is specified, the Contractor shall proceed with the construction, including excavation, pile driving, concrete, steel erection, and all appurtenant work required for the complete construction of the item, except at times when weather conditions make such operations impracticable.

Regardless of the precautions taken, the Contractor shall be responsible for protection of the concrete placed and any concrete damaged by cold temperatures shall be removed and replaced.

- (1) Protection Method I. The concrete shall be completely covered with insulating material such as fiberglass, rock wool, or other approved commercial insulating material having the minimum thermal resistance R, as defined in ASTM C 168, for

the corresponding minimum dimension of the concrete unit being protected as shown in the following table.

Minimum Pour Dimension		Thermal Resistance R
in.	(mm)	
6 or less	(150 or less)	R=16
> 6 to 12	(> 150 to 300)	R=10
> 12 to 18	(> 300 to 450)	R=6
> 18	(> 450)	R=4

The insulating material manufacturer shall clearly mark the insulating material with the thermal resistance R value.

The insulating material shall be completely enclosed on sides and edges with an approved waterproof liner and shall be maintained in a serviceable condition. Any tears in the liner shall be repaired in a manner approved by the Engineer. The Contractor shall provide means for checking the temperature of the surface of the concrete during the protection period.

On formed surfaces, the insulating material shall be attached to the outside of the forms with wood cleats or other suitable means to prevent any circulation of air under the insulation and shall be in place before the concrete is placed. The blanket insulation shall be applied tightly against the forms. The edges and ends shall be attached so as to exclude air and moisture. If the blankets are provided with nailing flanges, the flanges shall be attached to the studs with cleats. Where tie rods or reinforcement bars protrude, the areas adjacent to the rods or bars shall be adequately protected in a manner satisfactory to the Engineer. Where practicable, the insulation shall overlap any previously placed concrete by at least 1 ft (300 mm). Insulation on the underside of floors on steel members shall cover the top flanges of supporting members. On horizontal surfaces, the insulating material shall be placed as soon as the concrete has set, so that the surface will not be marred and shall be covered with canvas or other waterproof covering. The insulating material shall remain in place for a period of seven days after the concrete is placed.

The Contractor may remove the forms, providing the temperature is 35 °F (2 °C) and rising and the Contractor is able to wrap the particular section within two hours from the time of the start of the form removal. The insulation shall remain in place for the remainder of the seven days curing period.

- (2) Protection Method II. The concrete shall be enclosed in adequate housing and the air surrounding the concrete kept at a temperature of not less than 50 °F (10 °C) nor more than 80 °F (27 °C) for a period of seven days after the concrete is placed. The Contractor shall provide means for checking the temperature of the surface of the concrete or air temperature within the housing during the protection period. All exposed surfaces within the housing shall be cured according to the Index Table.

The Contractor shall provide adequate fire protection where heating is in progress and such protection shall be accessible at all times. The Contractor shall maintain labor to keep the heating equipment in continuous operation.

At the close of the heating period, the temperature shall be decreased to the approximate temperature of the outside air at a rate not to exceed 15 °F (8 °C) per 12 hour period, after which the housing may be removed. The surface of the concrete shall be permitted to dry during the cooling period.

- (3) Protection Method III. As soon as the surface is sufficiently set to prevent marring, the concrete shall be covered with 12 in. (300 mm) of loose, dry straw followed by a layer of impermeable covering. The edges of the covering shall be sealed to prevent circulation of air and prevent the cover from flapping or blowing. The protection shall remain in place until the concrete is seven days old. If construction operations require removal, the protection removed shall be replaced immediately after completion or suspension of such operations.

1020.14 Temperature Control for Placement. Temperature control for concrete placement shall be according to the following.

- (a) Concrete other than Structures. Concrete may be placed when the air temperature is above 35 °F (2 °C) and rising, and concrete placement shall stop when the falling temperature reaches 40 °F (4 °C) or below, unless otherwise approved by the Engineer.

The temperature of concrete immediately before placement shall be a minimum of 50 °F (10 °C) and a maximum of 90 °F (32 °C). If concrete is pumped, the temperature of the concrete as placed in the forms shall be a minimum of 50 °F (10 °C) and a maximum of 90 °F (32 °C). A maximum concrete temperature shall not apply to Class PP concrete.

- (b) Concrete in Structures. Concrete may be placed when the air temperature is above 40 °F (4 °C) and rising, and concrete placement shall stop when the falling temperature reaches 45 °F (7 °C) or below, unless otherwise approved by the Engineer.

The temperature of the concrete immediately before placement shall be a minimum of 50 °F (10 °C) and a maximum of 90 °F (32 °C). If concrete is pumped, the temperature of the concrete as placed in the forms shall be a minimum of 50 °F (10 °C) and a maximum of 90 °F (32 °C).

When insulated forms are used, the maximum temperature of the concrete mixture immediately before placement shall be 80 °F (25 °C).

When concrete is placed in contact with previously placed concrete, the temperature of the mixed concrete may be increased to 80 °F (25 °C) by the Contractor to offset anticipated heat loss.

- (c) All Classes of Concrete. Aggregates and water shall be heated or cooled uniformly and as necessary to produce concrete within the specified temperature limits. No frozen aggregates shall be used in the concrete.
- (d) Temperature. The concrete temperature shall be determined according to Illinois Modified AASHTO T 309.

1020.15 Heat of Hydration Control for Concrete Structures. The Contractor shall control the heat of hydration for concrete structures when the least dimension for a drilled shaft, foundation, footing, substructure, or superstructure concrete pour exceeds 5.0 ft (1.5 m). The work shall be according to the following.

- (a) Temperature Restrictions. The maximum temperature of the concrete after placement shall not exceed 150 °F (66 °C). The maximum temperature differential between the internal concrete core and concrete 2 to 3 in. (50 to 75 mm) from the exposed surface shall not exceed 35 °F (19 °C). The Contractor shall perform temperature monitoring to ensure compliance with the temperature restrictions.
- (b) Thermal Control Plan. The Contractor shall provide a thermal control plan a minimum of 28 calendar days prior to concrete placement for review by the Engineer. Acceptance of the thermal control plan by the Engineer shall not preclude the Contractor from specification compliance, and from preventing cracks in the concrete. At a minimum, the thermal control plan shall provide detailed information on the following requested items and shall comply with the specific specifications indicated for each item.
 - (1) Concrete mix design(s) to be used. Grout mix design if post-cooling with embedded pipe.

The mix design requirements in Articles 1020.04 and 1020.05 shall be revised to include the following additional requirements to control the heat of hydration.

- a. The concrete mixture shall be uniformly graded and preference for larger size aggregate shall be used in the mix design. Article 1004.02(d)(2) and information in the "Portland Cement Concrete Level III Technician Course – Manual of Instructions for Design of Concrete Mixtures" shall be used to develop the uniformly graded mixture.
- b. The following shall apply to all concrete except Class DS concrete or when self-consolidating concrete is desired. For central-mixed concrete, the Contractor shall have the option to develop a mixture with a minimum of 520 lbs/cu yd (309 kg/cu m) of cement and finely divided minerals summed together. For truck-mixed or shrink-mixed concrete, the Contractor shall have the option to develop a mixture with a minimum of 550 lbs/cu yd (326 kg/cu m) of cement and finely divided minerals summed together. A water-reducing or high range water-reducing admixture shall be used in the central mixed, truck-mixed or shrink-mixed concrete mixture. For any mixture to be placed underwater, the minimum

cement and finely divided minerals shall be 550 lbs/cu yd (326 kg/cu m) for central-mixed concrete, and 580 lbs/cu yd (344 kg/cu m) for truck-mixed or shrink-mixed concrete.

For Class DS concrete, CA 11 may be used. If CA 11 is used, the Contractor shall have the option to develop a mixture with a minimum cement and finely divided minerals of 605 lbs/cu yd (360 kg/cu m) summed together. If CA 11 is used and either Class DS concrete is placed underwater or a self-consolidating concrete mixture is desired, the Contractor shall have the option to develop a mixture with a minimum cement and finely divided minerals of 635 lbs/cu yd (378 kg/cu m) summed together.

- c. The minimum portland cement content in the mixture shall be 375 lbs/cu yd (222 kg/cu m). When the total of organic processing additions, inorganic processing additions, and limestone addition exceed 5.0 percent in the cement, the minimum portland cement content in the mixture shall be 400 lbs/cu yd (237 kg/cu m). For a drilled shaft, foundation, footing, or substructure, the minimum portland cement may be reduced to as low as 330 lbs/cu yd (196 kg/cu m) if the concrete has adequate freeze/thaw durability. The Contractor shall provide freeze/thaw test results according to AASHTO T 161 Procedure A or B, and the relative dynamic modulus of elasticity of the mix design shall be a minimum of 80 percent. Freeze/thaw testing will not be required for concrete that will not be exposed to freezing and thawing conditions as determined by the Engineer.
- d. The maximum cement replacement with fly ash shall be 40.0 percent. The maximum cement replacement with ground granulated blast-furnace slag shall be 65.0 percent. When cement replacement with ground granulated blast-furnace slag exceeds 35.0 percent, only Grade 100 shall be used.
- e. The mixture may contain a maximum of two finely divided minerals. The finely divided mineral in portland-pozzolan cement or portland blast-furnace slag cement shall count toward the total number of finely divided minerals allowed. The finely divided minerals shall constitute a maximum of 65.0 percent of the total cement plus finely divided minerals. The fly ash portion shall not exceed 40.0 percent. The ground granulated blast-furnace slag portion shall not exceed 65.0 percent. The microsilica or high-reactivity metakaolin portion used together or separately shall not exceed 5.0 percent.
- f. The time to obtain the specified strength may be increased to a maximum 56 days, provided the curing period specified in Article 1020.13 is increased to a minimum of 14 days.

The minimum grout strength for filling embedded pipe shall be as specified for the concrete, and testing shall be according to AASHTO T 106.

- (2) The selected mathematical method for evaluating heat of hydration thermal effects, which shall include the calculated adiabatic temperature rise, calculated maximum concrete temperature, and calculated maximum temperature differential between the internal concrete core and concrete 2 to 3 in. (50 to 75 mm) from the exposed surface. The time when the maximum concrete temperature and maximum temperature differential will occur is required if the time frame will be more than seven days.

Acceptable mathematical methods include ACI 207.2R "Report on Thermal and Volume Change Effects on Cracking of Mass Concrete" as well as other proprietary methods. The Contractor shall perform heat of hydration testing on the cement and finely divided minerals to be used in the concrete mixture. The test shall be according to ASTM C 186 or other applicable test methods, and the result for heat shall be used in the equation to calculate adiabatic temperature rise.

The Contractor has the option to propose a higher maximum temperature differential between the internal concrete core and concrete 2 to 3 in. (50 to 75 mm) from the exposed surface, but the proposed value shall not exceed 50 °F (10 °C). In addition, based on strength gain of the concrete, multiple maximum temperature differentials at different times may be proposed. The proposed value shall be justified through a mathematical method.

- (3) Proposed maximum concrete temperature or temperature range prior to placement.

Article 1020.14 shall apply except a minimum 40 °F (10 °C) concrete temperature will be permitted.

- (4) Pre-cooling, post-cooling, and surface insulation methods that will be used to ensure the concrete will comply with the specified maximum temperature and specified or proposed temperature differential. For reinforcement that extends beyond the limits of the pour, the Contractor shall indicate if the reinforcement is required to be covered with insulation.

Refer to ACI 207.4R "Cooling and Insulating Systems for Mass Concrete" for acceptable methods that will be permitted. A copy of the ACI document shall be provided to the Engineer at the construction site. If embedded pipe is used for post-cooling, the material shall be polyvinyl chloride or polyethylene. The embedded pipe system shall be properly supported, and the Contractor shall subsequently inspect glued joints to ensure they are able to withstand free falling concrete. The embedded pipe system shall be leak tested after inspection of the glued joints, and prior to the concrete placement. The leak test shall be performed at maximum service pressure or higher for a minimum of 15 minutes. All leaks shall be repaired. The embedded pipe cooling water may be from natural sources such as streams and rivers, but shall be filtered to prevent system stoppages. When the embedded pipe is no longer needed, the surface connections to the pipe shall be removed to a depth of 4 in. (100 mm) below the surface of the concrete. The remaining pipe shall be

completely filled with grout. The 4 in. (100 mm) deep concrete hole shall be filled with nonshrink grout. Form and insulation removal shall be done in a manner to prevent cracking and ensure the maximum temperature differential is maintained. Insulation shall be in good condition as determined by the Engineer and properly attached.

- (5) Dimensions of each concrete pour, location of construction joints, placement operations, pour pattern, lift heights, and time delays between lifts.

Refer to ACI 207.1R "Guide to Mass Concrete" for acceptable placement operations that will be permitted. A copy of the ACI document shall be provided to the Engineer at the construction site.

- (6) Type of temperature monitoring system, the number of temperature sensors, and location of sensors.

A minimum of two independent temperature monitoring systems and corresponding sensors shall be used.

The temperature monitoring system shall have a minimum temperature range of 32 °F (0 °C) to 212 °F (100 °C), an accuracy of ± 2 °F (± 1 °C), and be able to automatically record temperatures without external power. Temperature monitoring shall begin once the sensor is encased in concrete, and with a maximum interval of one hour. Temperature monitoring may be discontinued after the maximum concrete temperature has been reached, post-cooling is no longer required, and the maximum temperature differential between the internal concrete core and the ambient air temperature does not exceed 35 °F (19 °C). The Contractor has the option to select a higher maximum temperature differential, but the proposed value shall not exceed 50 °F (28 °C). The proposed value shall be justified through a mathematical method.

At a minimum, a temperature sensor shall be located at the theoretical hottest portion of the concrete, normally the geometric center, and at the exterior face that will provide the maximum temperature differential. At the exterior face, the sensor shall be located 2 to 3 in. (50 to 75 mm) from the surface of the concrete. Sensors shall also be located a minimum of 1 in. (25 mm) away from reinforcement, and equidistant between cooling pipes if either applies. A sensor will also be required to measure ambient air temperature. The entrant/exit cooling water temperature for embedded pipe shall also be monitored.

Temperature monitoring results shall be provided to the Engineer a minimum of once each day and whenever requested by the Engineer. The report may be electronic or hard copy. The report shall indicate the location of each sensor, the temperature recorded, and the time recorded. The report shall be for all sensors and shall include ambient air temperature and entrant/exit cooling water temperatures. The temperature data in the report may be provided in tabular or graphical format, and the report shall indicate any corrective actions during the monitoring period. At the

completion of the monitoring period, the Contractor shall provide the Engineer a final report that includes all temperature data and corrective actions.

(7) Indicate contingency operations to be used if the maximum temperature or temperature differential of the concrete is reached after placement.

(c) Temperature Restriction Violations. If the maximum temperature of the concrete after placement exceeds 150 °F (66 °C), but is less than 158 °F (70 °C), the concrete will be accepted if no cracking or other unacceptable defects are identified. If cracking or unacceptable defects are identified, Article 105.03 shall apply. If the concrete temperature exceeds 158 °F (70 °C), Article 105.03 shall apply.

If a temperature differential between the internal concrete core and concrete 2 to 3 in. (50 to 75 mm) from the exposed surface exceeds the specified or proposed maximum value allowed, the concrete will be accepted if no cracking or other unacceptable defects are identified. If unacceptable defects are identified, Article 105.03 shall apply.

When the maximum 150 °F (66 °C) concrete temperature or the maximum allowed temperature differential is violated, the Contractor shall implement corrective action prior to the next pour. In addition, the Engineer reserves the right to request a new thermal control plan for acceptance before the Contractor is allowed to pour again.

(d) Inspection and Repair of Cracks. The Engineer will inspect the concrete for cracks after the temperature monitoring is discontinued, and the Contractor shall provide access for the Engineer to do the inspection. A crack may require repair by the Contractor as determined by the Engineer. The Contractor shall be responsible for the repair of all cracks. Protective coat or a concrete sealer shall be applied to a crack less than 0.007 in. (0.18 mm) in width. A crack that is 0.007 in. (0.18 mm) or greater shall be pressure injected with epoxy according to Section 590.

80279

PORTLAND CEMENT CONCRETE SIDEWALK (BDE)

Effective: January 1, 2012

Revise Article 424.07 of the Standard Specifications to read:

424.07 Expansion Joints. Expansion joints shall be 1/2 in. (13 mm) thick and consist of preformed joint filler. The top of the joint filler shall be 1/4 in. (6 mm) below the surface of the sidewalk.

Expansion joints shall be placed in locations as follows.

- (a) Expansion joints shall be placed between the sidewalk and all structures such as light poles, traffic signal poles, traffic poles and subway columns, which extend through the sidewalk.
- (b) Transverse expansion joints shall be placed at maximum intervals of 50 ft (15 m) in the sidewalk. Where the sidewalk is constructed adjacent to pavement or curb having expansion joints, the expansion joints in the sidewalk shall be placed in line with the adjacent expansion joints as nearly as practicable.
- (c) Expansion joints shall also be placed where the sidewalk abuts existing sidewalks, between driveway pavement and sidewalk, and between sidewalk accessibility ramps and curbs where the ramp abuts a curb.”

80280

QUALITY CONTROL/QUALITY ASSURANCE OF CONCRETE MIXTURES (BDE)

Effective: January 1, 2012

Add the following to Section 1020 of the Standard Specifications:

"1020.16 Quality Control/Quality Assurance of Concrete Mixtures. This Article specifies the quality control responsibilities of the Contractor for concrete mixtures (except Class PC and PS concrete), cement aggregate mixture II, and controlled low-strength material incorporated in the project, and defines the quality assurance and acceptance responsibilities of the Engineer.

A list of quality control/quality assurance (QC/QA) documents is provided in Article 1020.16(g), Schedule D.

A Level I Portland Cement Concrete (PCC) Technician shall be defined as an individual who has successfully completed the Department's training for concrete testing.

A Level II Portland Cement Concrete (PCC) Technician shall be defined as an individual who has successfully completed the Department's training for concrete proportioning.

A Level III Portland Cement Concrete (PCC) Technician shall be defined as an individual who has successfully completed the Department's training for concrete mix design.

A Concrete Tester shall be defined as an individual who has successfully completed the Department's training to assist with concrete testing and is monitored on a daily basis.

Aggregate Technician shall be defined as an individual who has successfully completed the Department's training for gradation testing involving aggregate production and mixtures.

Mixture Aggregate Technician shall be defined as an individual who has successfully completed the Department's training for gradation testing involving mixtures.

Gradation Technician shall be defined as an individual who has successfully completed the Department's training to assist with gradation testing and is monitored on a daily basis.

- (a) Equipment/Laboratory. The Contractor shall provide a laboratory and test equipment to perform their quality control testing.

The laboratory shall be of sufficient size and be furnished with the necessary equipment, supplies, and current published test methods for adequately and safely performing all required tests. The laboratory will be approved by the Engineer according to the current Bureau of Materials and Physical Research Policy Memorandum "Minimum Private Laboratory Requirements for Construction Materials Testing or Mix Design". Production of a mixture shall not begin until the Engineer provides written approval of the laboratory.

The Contractor shall refer to the Department's "Required Sampling and Testing Equipment for Concrete" for equipment requirements.

Test equipment shall be maintained and calibrated as required by the appropriate test method, and when required by the Engineer. This information shall be documented on the Department's "Calibration of Concrete Testing Equipment" form.

Test equipment used to determine compressive or flexural strength shall be calibrated each 12 month period by an independent agency, using calibration equipment traceable to the National Institute of Standards and Technology (NIST). The Contractor shall have the calibration documentation available at the test equipment location.

The Engineer will have unrestricted access to the plant and laboratory at any time to inspect measuring and testing equipment, and will notify the Contractor of any deficiencies. Defective equipment shall be immediately repaired or replaced by the Contractor.

- (b) Quality Control Plan. The Contractor shall submit, in writing, a proposed Quality Control (QC) Plan to the Engineer. The QC Plan shall be submitted a minimum of 45 calendar days prior to the production of a mixture. The QC Plan shall address the quality control of the concrete, cement aggregate mixture II, and controlled low-strength material incorporated in the project. The Contractor shall refer to the Department's "Model Quality Control Plan for Concrete Production" to prepare a QC Plan. The Engineer will respond in writing to the Contractor's proposed QC Plan within 15 calendar days of receipt.

Production of a mixture shall not begin until the Engineer provides written approval of the QC Plan. The approved QC Plan shall become a part of the contract between the Department and the Contractor, but shall not be construed as acceptance of any mixture produced.

The QC Plan may be amended during the progress of the work, by either party, subject to mutual agreement. The Engineer will respond in writing to a Contractor's proposed QC Plan amendment within 15 calendar days of receipt. The response will indicate the approval or denial of the Contractor's proposed QC Plan amendment.

- (c) Quality Control by Contractor. The Contractor shall perform quality control inspection, sampling, testing, and documentation to meet contract requirements. Quality control includes the recognition of obvious defects and their immediate correction. Quality control also includes appropriate action when passing test results are near specification limits, or to resolve test result differences with the Engineer. Quality control may require increased testing, communication of test results to the plant or the jobsite, modification of operations, suspension of mixture production, rejection of material, or other actions as appropriate. The Engineer shall be immediately notified of any failing tests and subsequent remedial action. Passing tests shall be reported no later than the start of the next work day.

When a mixture does not comply with specifications, the Contractor shall reject the material; unless the Engineer accepts the material for incorporation in the work, according to Article 105.03.

- (1) Personnel Requirements. The Contractor shall provide a Quality Control (QC) Manager who will have overall responsibility and authority for quality control. The jobsite and plant personnel shall be able to contact the QC Manager by cellular phone, two-way radio or other methods approved by the Engineer.

The QC Manager shall visit the jobsite a minimum of once a week. A visit shall be performed the day of a bridge deck pour, the day a non-routine mixture is placed as determined by the Engineer, or the day a plant is anticipated to produce more than 1000 cu yd (765 cu m). Any of the three required visits may be used to meet the once per week minimum requirement.

The Contractor shall provide personnel to perform the required inspections, sampling, testing and documentation in a timely manner. The Contractor shall refer to the Department's "Qualifications and Duties of Concrete Quality Control Personnel" document.

A Level I PCC Technician shall be provided at the jobsite during mixture production and placement, and may supervise concurrent pours on the project. For concurrent pours, a minimum of one Concrete Tester shall be required at each pour location. If the Level I PCC Technician is at one of the pour locations, a Concrete Tester is still required at the same location. Each Concrete Tester shall be able to contact the Level I PCC Technician by cellular phone, two-way radio or other methods approved by the Engineer. A single Level I PCC Technician shall not supervise concurrent pours for multiple contracts.

A Level II PCC Technician shall be provided at the plant, or shall be available, during mixture production and placement. A Level II PCC Technician may supervise a maximum of three plants. Whenever the Level II PCC Technician is not at the plant during mixture production and placement, a Concrete Tester or Level I PCC Technician shall be present at the plant to perform any necessary concrete tests. The Concrete Tester, Level I PCC Technician, or other individual shall also be trained to perform any necessary aggregate moisture tests, if the Level II PCC Technician is not at the plant during mixture production and placement. The Concrete Tester, Level I PCC Technician, plant personnel, and jobsite personnel shall have the ability to contact the Level II PCC Technician by cellular phone, two-way radio, or other methods approved by the Engineer.

For a mixture which is produced and placed with a mobile portland cement concrete plant as defined in Article 1103.04, a Level II PCC Technician shall be provided. The Level II PCC Technician shall be present at all times during mixture production and placement.

A Concrete Tester, Mixture Aggregate Technician, and Aggregate Technician may provide assistance with sampling and testing. A Gradation Technician may provide assistance with testing. A Concrete Tester shall be supervised by a Level I or Level II PCC Technician. A Gradation Technician shall be supervised by a Level II PCC Technician, Mixture Aggregate Technician, or Aggregate Technician.

- (2) Required Plant Tests. Sampling and testing shall be performed at the plant, or at a location approved by the Engineer, to control the production of a mixture. The required minimum Contractor plant sampling and testing is indicated in Article 1020.16(g) Schedule A.
- (3) Required Field Tests. Sampling and testing shall be performed at the jobsite to control the production of a mixture, and to comply with specifications for placement. For standard curing, after initial curing, and for strength testing; the location shall be approved by the Engineer. The required minimum Contractor jobsite sampling and testing is indicated in Article 1020.16(g), Schedule B.
- (d) Quality Assurance by Engineer. The Engineer will perform quality assurance tests on independent samples and split samples. An independent sample is a field sample obtained and tested by only one party. A split sample is one of two equal portions of a field sample, where two parties each receive one portion for testing. The Engineer may request the Contractor to obtain a split sample. Aggregate split samples and any failing strength specimen shall be retained until permission is given by the Engineer for disposal. The results of all quality assurance tests by the Engineer will be made available to the Contractor. However, Contractor split sample test results shall be provided to the Engineer before Department test results are revealed. The Engineer's quality assurance independent sample and split sample testing is indicated in Article 1020.16(g), Schedule C.
- (1) Strength Testing. For strength testing, Article 1020.09 shall apply, except the Contractor and Engineer beam strength specimens may be cured in the same tank.
- (2) Comparing Test Results. Differences between the Engineer's and the Contractor's split sample test results will not be considered extreme if within the following limits:

Test Parameter	Acceptable Limits of Precision
Slump	0.75 in. (20 mm)
Air Content	0.9%
Compressive Strength	900 psi (6200 kPa)
Flexural Strength	90 psi (620 kPa)
Aggregate Gradation	See "Guideline for Sample Comparison" in Appendix "A" of the Manual of Test Procedures for Materials.

When acceptable limits of precision have been met, but only one party is within specification limits, the failing test shall be resolved before the material may be considered for acceptance.

(3) Test Results and Specification Limits.

- a. Split Sample Testing. If either the Engineer's or the Contractor's split sample test result is not within specification limits, and the other party is within specification limits; immediate retests on a split sample shall be performed for slump, air content, or aggregate gradation. A passing retest result by each party will require no further action. If either the Engineer's or Contractor's slump, air content, or aggregate gradation split sample retest result is a failure; or if either the Engineer's or Contractor's strength test result is a failure, and the other party is within specification limits; the following actions shall be initiated to investigate the test failure:

1. The Engineer and the Contractor shall investigate the sampling method, test procedure, equipment condition, equipment calibration, and other factors.
2. The Engineer or the Contractor shall replace test equipment, as determined by the Engineer.
3. The Engineer and the Contractor shall perform additional testing on split samples, as determined by the Engineer.

For aggregate gradation, jobsite slump, and jobsite air content; if the failing split sample test result is not resolved according to 1., 2., or 3., and the mixture has not been placed, the Contractor shall reject the material; unless the Engineer accepts the material for incorporation in the work according to Article 105.03. If the mixture has already been placed, or if a failing strength test result is not resolved according to 1., 2., or 3., the material will be considered unacceptable.

If a continued trend of difference exists between the Engineer's and the Contractor's split sample test results, or if split sample test results exceed the acceptable limits of precision, the Engineer and the Contractor shall investigate according to items 1., 2., and 3.

- b. Independent Sample Testing. For aggregate gradation, jobsite slump, and jobsite air content; if the result of a quality assurance test on a sample independently obtained by the Engineer is not within specification limits, and the mixture has not been placed, the Contractor shall reject the material, unless the Engineer accepts the material for incorporation in the work according to Article 105.03. If the mixture has already been placed or the Engineer obtains a failing strength test result, the material will be considered unacceptable.

(e) Acceptance by the Engineer. Final acceptance will be based on the Standard Specifications and the following:

- (1) The Contractor's compliance with all contract documents for quality control.
- (2) Validation of Contractor quality control test results by comparison with the Engineer's quality assurance test results using split samples. Any quality control or quality assurance test determined to be flawed may be declared invalid only when reviewed and approved by the Engineer. The Engineer will declare a test result invalid only if it is proven that improper sampling or testing occurred. The test result is to be recorded and the reason for declaring the test invalid will be provided by the Engineer.
- (3) Comparison of the Engineer's quality assurance test results with specification limits using samples independently obtained by the Engineer.

The Engineer may suspend mixture production, reject materials, or take other appropriate action if the Contractor does not control the quality of concrete, cement aggregate mixture II, or controlled low-strength material for acceptance. The decision will be determined according to (1), (2), or (3).

(f) Documentation.

- (1) Records. The Contractor shall be responsible for documenting all observations, inspections, adjustments to the mix design, test results, retest results, and corrective actions in a bound hardback field book, bound hardback diary, or appropriate Department form, which shall become the property of the Department. The documentation shall include a method to compare the Engineer's test results with the Contractor's results. The Contractor shall be responsible for the maintenance of all permanent records whether obtained by the Contractor, the consultants, the subcontractors, or the producer of the mixture. The Contractor shall provide the Engineer full access to all documentation throughout the progress of the work.

The Department's form MI 504M, form BMPR MI654, and form BMPR MI655 shall be completed by the Contractor, and shall be submitted to the Engineer weekly or as required by the Engineer. A correctly completed form MI 504M, form BMPR MI654, and form BMPR MI655 are required to authorize payment by the Engineer, for applicable pay items.

- (2) Delivery Truck Ticket. The following information shall be recorded on each delivery ticket or in a bound hardback field book: initial/final revolution counter reading, at the jobsite, if the mixture is truck-mixed; time discharged at the jobsite; total amount of each admixture added at the jobsite; total amount of water added at the jobsite; and total amount of cement added at the jobsite if the air content needed adjustment.

(g) Basis of Payment and Schedules. Quality Control/Quality Assurance of portland cement concrete mixtures will not be paid for separately, but shall be considered as included in the cost of the various concrete contract items.

SCHEDULE A

CONTRACTOR PLANT SAMPLING AND TESTING			
Item	Test	Frequency	IL Modified AASHTO or Department Test Method ^{1/}
Aggregates (Arriving at Plant)	Gradation ^{2/}	As needed to check source for each gradation number	T 2, T 11, T 27, and T 248
Aggregates (Stored at Plant in Stockpiles or Bins)	Gradation ^{2/}	2,500 cu yd (1,900 cu m) for each gradation number ^{3/}	T 2, T 11, T 27, and T 248
Aggregates (Stored at Plant in Stockpiles or Bins)	Moisture ^{4/} : Fine Aggregate	Once per week for moisture sensor, otherwise daily for each gradation number	Flask, Dunagan, Pycnometer Jar, or T 255
	Moisture ^{4/} : Coarse Aggregate	As needed to control production for each gradation number	Dunagan, Pycnometer Jar, or T 255
Mixture ^{5/}	Slump, Air Content, Unit Weight / Yield, and Temperature	As needed to control production	T 141 and T 119 T 141 and T 152 or T 196 T 141 and T 121 T 141 and T 309

- 1/ Refer to the Department's "Manual of Test Procedures for Materials".
- 2/ All gradation tests shall be washed. Testing shall be completed no later than 24 hours after the aggregate has been sampled.
- 3/ One per week (Sunday through Saturday) minimum unless the stockpile has not received additional aggregate material since the previous test.

One per day minimum for a bridge deck pour unless the stockpile has not received additional aggregate material since the previous test. The sample shall be taken and testing completed prior to the pour. The bridge deck aggregate sample may be taken the day before the pour or as approved by the Engineer.

- 4/ If the moisture test and moisture sensor disagree by more than 0.5 percent, retest. If the difference remains, adjust the moisture sensor to an average of two or more moisture tests, using the Dunagan or Illinois Modified AASHTO T 255 test method. The Department's "Water/Cement Ratio Worksheet" form shall be completed when applicable.
- 5/ The Contractor may also perform strength testing according to Illinois Modified AASHTO T 141, T 23, and T 22 or T 177; or water content testing according to Illinois Modified AASHTO T 318; or other tests at the plant to control mixture production.

SCHEDULE B

CONTRACTOR JOBSITE SAMPLING & TESTING ^{1/}			
Item	Measured Property	Random Sample Testing Frequency per Mix Design and per Plant ^{2/}	IL Modified AASHTO Test Method
Pavement, Shoulder, Base Course, Base Course Widening, Driveway Pavement, Railroad Crossing, Cement Aggregate Mixture II	Slump ^{3/ 4/}	1 per 500 cu yd (400 cu m) or minimum 1/day	T 141 and T 119
	Air Content ^{3/ 5/} _{6/}	1 per 100 cu yd (80 cu m) or minimum 1/day	T 141 And T 152 or T 196
	Compressive Strength ^{7/ 8/} or Flexural Strength ^{7/ 8/}	1 per 1250 cu yd (1000 cu m) or minimum 1/day	T 141, T 22 and T 23 Or T 141, T 177 and T 23
Bridge Approach Slab ^{9/} , Bridge Deck ^{9/} , Bridge Deck Overlay ^{9/} , Superstructure ^{9/} , Substructure, Culvert, Miscellaneous Drainage Structures, Retaining Wall, Building Wall, Drilled Shaft Pile & Encasement Footing, Foundation, Pavement Patching, Structural Repairs	Slump ^{3/ 4/}	1 per 50 cu yd (40 cu m) or minimum 1/day	T 141 and T 119
	Air Content ^{3/ 5/} _{6/}	1 per 50 cu yd (40 cu m) or minimum 1/day	T 141 And T 152 or T 196
	Compressive Strength ^{7/ 8/} or Flexural Strength ^{7/ 8/}	1 per 250 cu yd (200 cu m) or minimum 1/day	T 141, T 22 and T 23 Or T 141, T 177 and T 23
Seal Coat	Slump ^{3/}	1 per 250 cu yd (200 cu m) or minimum 1/day	T 141 and T 119
	Air Content ^{3/ 6/}	As needed to control production	T 141 And T 152 or T 196
	Compressive Strength ^{7/ 8/} or Flexural Strength ^{7/ 8/}	1 per 250 cu yd (200 cu m) or minimum 1/day	T 141, T 22 and T 23 Or T 141, T 177 and T 23

CONTRACTOR JOBSITE SAMPLING & TESTING ^{1/}			
Curb, Gutter, Median, Barrier, Sidewalk, Slope Wall, Paved Ditch, Fabric Formed Concrete Revetment Mat ^{10/} , Miscellaneous Items, Incidental Items	Slump ^{3/ 4/}	1 per 100 cu yd (80 cu m) or minimum 1/day	T 141 and T 119
	Air Content ^{3/ 5/ 6/}	1 per 50 cu yd (40 cu m) or minimum 1/day	T 141 And T 152 or T 196
	Compressive Strength ^{7/ 8/} or Flexural Strength ^{7/ 8/}	1 per 400 cu yd (300 cu m) or minimum 1/day	T 141, T 22 and T 23 Or T 141, T 177 and T 23
All	Temperature ^{3/}	As needed to control production	T 141 and T 309
Controlled Low-Strength Material (CLSM)	Flow, Air Content and Compressive Strength	As needed to control production	Illinois Test Procedure 307

- 1/ Sampling and testing of small quantities of curb, gutter, median, barrier, sidewalk, slope wall, paved ditch, miscellaneous items, and incidental items may be waived by the Engineer if requested by the Contractor. However, quality control personnel are still required according to Article 1020.16(c)(1) The Contractor shall also provide recent evidence that similar material has been found to be satisfactory under normal sampling and testing procedures. The total quantity that may be waived for testing shall not exceed 100 cu yd (76 cu m) per contract.
- 2/ If one mix design is being used for several construction items during a day's production, one testing frequency may be selected to include all items. The construction items shall have the same slump, air content, and water/cement ratio specifications. The frequency selected shall equal or exceed the testing required for the construction item.

One sufficiently sized sample shall be taken to perform the required test(s). Random numbers shall be determined according to the Department's "Method for Obtaining Random Samples for Concrete". The Engineer will provide random sample locations.
- 3/ The temperature, slump, and air content tests shall be performed on the first truck load delivered, for each pour. Unless a random sample is required for the first truck load, testing the first truck load does not satisfy random sampling requirements.
- 4/ The slump random sample testing frequency shall be a minimum 1/day for a construction item which is slipformed.
- 5/ If a pump or conveyor is used for placement, a correction factor shall be established to allow for a loss of air content during transport. The first three truck loads delivered shall be tested, before and after transport by the pump or conveyor, to establish the correction factor. Once the correction is determined, it shall be re-checked after an additional

50 cu yd (40 cu m) is pumped, or an additional 100 cu yd (80 cu m) is conveyed. This shall continue throughout the pour. If the re-check indicates the correction factor has changed, a minimum of two truckloads is required to re-establish the correction factor. The correction factor shall also be re-established when significant changes in temperature, distance, pump or conveyor arrangement, and other factors have occurred. If the correction factor is 3.0 percent or more, the Contractor shall take corrective action to reduce the loss of air content during transport by the pump or conveyor. The Contractor shall record all air content test results, correction factors and corrected air contents. The corrected air content shall be reported on form BMPR MI654.

- 6/ If the Contractor's or Engineer's air content test result is within the specification limits, and 0.2 percent or closer to either limit, the next truck load delivered shall be tested by the Contractor. For example, if the specified air content range is 5.0 to 8.0 percent and the test result is 5.0, 5.1, 5.2, 7.8, 7.9 or 8.0 percent, the next truck shall be tested by the Contractor.

If the Contractor's or Engineer's air content or slump test result is not within the specification limits, all subsequent truck loads delivered shall be tested by the Contractor until the problem is corrected.

- 7/ The test of record for strength shall be the day indicated in Article 1020.04. For cement aggregate mixture II, a strength requirement is not specified and testing is not required. Additional strength testing to determine early falsework and form removal, early pavement or bridge opening to traffic, or to monitor strengths is at the discretion of the Contractor. Strength shall be defined as the average of at least two cylinder or two beam breaks for field tests.
- 8/ In addition to the strength test, an air test, slump test, and temperature test shall be performed on the same sample. For mixtures pumped or conveyed, the Contractor shall sample according to Illinois Modified AASHTO T 141.
- 9/ The air content test will be required for each delivered truck load.
- 10/ For fabric formed concrete revetment mat, the slump test is not required and the flexural strength test is not applicable.

SCHEDULE C

ENGINEER QUALITY ASSURANCE INDEPENDENT SAMPLE TESTING		
Location	Measured Property	Testing Frequency ^{1/}
Plant	Gradation of aggregates stored in stockpiles or bins, Slump and Air Content	As determined by the Engineer.
Jobsite	Slump, Air Content and Strength	As determined by the Engineer.

ENGINEER QUALITY ASSURANCE SPLIT SAMPLE TESTING		
Location	Measured Property	Testing Frequency ^{1/}
Plant	Gradation of aggregates stored in stockpiles or bins ^{2/}	At the beginning of the project, the first test performed by the Contractor. Thereafter, a minimum of 10% of total tests required of the Contractor will be performed per aggregate gradation number and per plant.
	Slump and Air Content	As determined by the Engineer.
Jobsite	Slump ^{2/} and Air Content ^{2/3/}	At the beginning of the project, the first three tests performed by the Contractor. Thereafter, a minimum of 20% of total tests required of the Contractor will be performed per plant, which will include a minimum of one test per mix design.
	Strength ^{2/}	At the beginning of the project, the first test performed by the Contractor. Thereafter, a minimum of 20% of total tests required of the Contractor will be performed per plant, which will include a minimum of one test per mix design.

- 1/ The Engineer will perform the testing throughout the period of quality control testing by the Contractor.
- 2/ The Engineer will witness and take immediate possession of or otherwise secure the Department's split sample obtained by the Contractor.
- 3/ Before transport by pump or conveyor, a minimum of 20 percent of total tests required of the Contractor will be performed per mix design and per plant. After transport by pump or conveyor, a minimum of 20 percent of total tests required of the Contractor will be performed per mix design and per plant.

SCHEDULE D

CONCRETE QUALITY CONTROL AND QUALITY ASSURANCE DOCUMENTS

- (a) Model Quality Control Plan for Concrete Production (*)
- (b) Qualifications and Duties of Concrete Quality Control Personnel (*)
- (c) Development of Gradation Bands on Incoming Aggregate at Mix Plants (*)
- (d) Required Sampling and Testing Equipment for Concrete (*)
- (e) Method for Obtaining Random Samples for Concrete (*)
- (f) Calibration of Concrete Testing Equipment (BMPR PCCQ01 through BMPR PCCQ09) (*)
- (g) Water/Cement Ratio Worksheet (BMPR PCCW01) (*)
- (h) Field/Lab Gradations (MI 504M) (*)
- (i) Concrete Air, Slump and Quantity (BMPR MI654) (*)
- (j) P.C. Concrete Strengths (BMPR MI655) (*)
- (k) Aggregate Technician Course or Mixture Aggregate Technician Course (*)
- (l) Portland Cement Concrete Tester Course (*)
- (m) Portland Cement Concrete Level I Technician Course - Manual of Instructions for Concrete Testing (*)
- (n) Portland Cement Concrete Level II Technician Course - Manual of Instructions for Concrete Proportioning (*)
- (o) Portland Cement Concrete Level III Technician Course - Manual of Instructions for Design of Concrete Mixtures (*)
- (p) Manual of Test Procedures for Materials

* Refer to Appendix C of the Manual of Test Procedures for Materials for more information."

80281

REMOVAL AND DISPOSAL OF REGULATED SUBSTANCES (BDE)

Effective: January 1, 2012

Revise Article 669.01 of the Standard Specifications to read:

“669.01 Description. This work shall consist of the transportation and proper disposal of contaminated soil and water. This work shall also consist of the removal, transportation, and proper disposal of underground storage tanks (UST), their content and associated underground piping to the point where the piping is above the ground, including determining the content types and estimated quantities.”

Revise the second paragraph of Article 669.16 of the Standard Specifications to read:

“The transportation and disposal of soil and other materials from an excavation determined to be contaminated will be paid for at the contract unit price per cubic yard (cubic meter) for NON-SPECIAL WASTE DISPOSAL, SPECIAL WASTE DISPOSAL, or HAZARDOUS WASTE DISPOSAL.”

80283

SELF-CONSOLIDATING CONCRETE FOR PRECAST PRODUCTS (BDE)

Effective: July 1, 2004

Revised: January 1, 2012

Description. This work shall consist of constructing precast concrete products with self-consolidating concrete. The concrete shall be according to the special provision, "Portland Cement Concrete", except as modified herein.

Definition. Self-consolidating concrete is a flowable mixture that does not require mechanical vibration for consolidation.

Mix Design Criteria. Article 1020.04 shall apply, except as follows:

- (a) If the maximum cement factor is not specified for the product, it shall not exceed 7.05 cwt/cu yd (418 kg/cu m).
- (b) If the maximum allowable water/cement ratio is not specified for the product, it shall not exceed 0.44.
- (c) The slump requirements shall not apply.
- (d) The coarse aggregate gradations shall be CA 13, CA 14, CA 16, or a blend of these gradations. CA 11 may be used when the Contractor provides satisfactory evidence to the Engineer that the mix will not segregate. The fine aggregate proportion shall be a maximum 50 percent by weight (mass) of the total aggregate used.
- (e) The slump flow range shall be ± 2 in. (± 50 mm) of the Contractor target value, and within the overall Department range of 20 in. (510 mm) minimum to 28 in. (710 mm) maximum.
- (f) The visual stability index shall be a maximum of 1.
- (g) The J-ring value shall be a maximum of 4 in. (100 mm). The Contractor may specify a lower maximum in the mix design.
- (h) The L-box blocking ratio shall be a minimum of 60 percent. The Contractor may specify a higher minimum in the mix design.
- (i) The hardened visual stability index shall be a maximum of 1.

Mixing Portland Cement Concrete. In addition to Article 1020.11, the mixing time for central-mixed concrete shall not be reduced as a result of a mixer performance test. Truck-mixed or shrink-mixed concrete shall be mixed in a truck mixer for a minimum of 100 revolutions.

The batch sequence, mixing speed, and mixing time shall be appropriate to prevent cement balls and mix foaming for central-mixed, truck-mixed, and shrink-mixed concrete.

Placing and Consolidating. The maximum distance of horizontal flow from the point of deposit shall be 25 ft (7.6 m), unless approved otherwise by the Engineer.

Concrete shall be rodded with a piece of lumber, conduit, or vibrator if the material has lost its fluidity prior to placement of additional concrete. The vibrator shall be the pencil head type with a maximum diameter or width of 1 in. (25 mm). Any other method for restoring the fluidity of the concrete shall be approved by the Engineer.

80132

SIDEWALK, CORNER OR CROSSWALK CLOSURE (BDE)

Effective: January 1, 2012

Add the following to Article 701.03 of the Standard Specifications:

“(p) Detectable Pedestrian Channelizing Barricades1106.02(k)”

Add the following to Article 701.15 of the Standard Specifications:

“(n) Detectable Pedestrian Channelizing Barricade. Detectable pedestrian channelizing barricades are cane detectable and visible to persons having low vision. These barricades are used to channelize pedestrian traffic.”

Add the following to Article 1106.02 of the Standard Specifications:

“(m) Detectable Pedestrian Channelizing Barricades. The top and bottom panels shall have alternating white and orange stripes sloping at 45 degrees on the side exposed to pedestrian traffic. Barricade stripes shall be 6 in. (150 mm) in width. The predominant color for other barricade components shall be white, orange, or silver.

The top and bottom rails shall be continuous to allow for detection for hand trailing and cane trailing, respectively.

The faces of the barricade rails shall be vertical.”

80285

SUBCONTRACTOR MOBILIZATION PAYMENTS (BDE)

Effective: April 2, 2005

Revised: April 1, 2011

To account for the preparatory work and operations necessary for the movement of subcontractor personnel, equipment, supplies, and incidentals to the project site and for all other work or operations that must be performed or costs incurred when beginning work approved for subcontracting according to Article 108.01 of the Standard Specifications, the Contractor shall make a mobilization payment to each subcontractor.

This mobilization payment shall be made at least 14 days prior to the subcontractor starting work. The amount paid shall be equal to 3 percent of the amount of the subcontract reported on form BC 260A submitted for the approval of the subcontractor's work.

The mobilization payment to the subcontractor is an advance payment of the reported amount of the subcontract and is not a payment in addition to the amount of the subcontract; therefore, the amount of the advance payment will be deducted from future progress payments.

This provision shall be incorporated directly or by reference into each subcontract approved by the Department.

80143

SURFACE TESTING OF PAVEMENTS (BDE)

Effective: April 1, 2002

Revised: January 1, 2007

Hot-Mix Asphalt (HMA) Overlays

Revise Article 406.03(h) of the Standard Specifications to read:

“(h) Pavement Surface Test Equipment1101.10”

Revise Article 406.11 of the Standard Specifications to read:

“406.11 Surface Tests. The finished surface of the pavement shall be tested for smoothness within three days of paving. Testing shall be performed in the presence of the Engineer.

Prior to testing, a copy of the approval letter and recorded settings from the Profile Equipment Verification (PEV) Program shall be submitted to the Engineer; and all objects and debris shall be removed from the pavement.

(a) Test Sections/Equipment.

(1) High-Speed Mainline Pavement. High-speed mainline pavement shall consist of pavements, ramps, and loops with a posted speed greater than 45 mph. These sections shall be tested using a profile testing device.

(2) Low-Speed Mainline Pavement. Low-speed mainline pavement shall consist of pavements, ramps, and loops with a posted speed of 45 mph or less. These sections shall be tested using a profile testing device.

(3) Miscellaneous Pavement. Miscellaneous pavement shall consist of:

a. pavement on horizontal curves with a centerline radius of curvature of less than or equal to 1000 ft (300 m) and pavement within the superelevation transition of such curves;

b. pavement on vertical curves having a length of less than or equal to 200 ft (60 m) in combination with an algebraic change in tangent grades greater than or equal to three percent, as may occur on urban ramps or other constricted-space facilities;

c. the first or last 15 ft (4.5 m) of a pavement section where the Contractor is not responsible for the adjoining surface;

d. intersections;

- e. variable width pavements;
- f. side street returns;
- g. crossovers;
- h. connector pavement from mainline pavement expansion joint to the bridge approach pavement;
- i. bridge approach pavement; and
- j. other miscellaneous pavement surfaces (i.e. a turn lane) as determined by the Engineer.

Miscellaneous pavement shall be tested using a 16 ft (5 m) straightedge set to a 3/8 in. (10 mm) tolerance.

(b) Lots/Sublots. Mainline pavement test sections will be divided into lots and sublots.

(1) Lots. A lot will be defined as a continuous strip of pavement 1 mile (1600 m) long and one lane wide. When the length of a continuous strip of pavement is less than 1 mile (1600 m), that pavement will be included in an adjacent lot. Structures will be omitted when measuring pavement length.

(2) Sublots. Lots will be divided into 0.1 mile (160 m) sublots. A partial subplot greater than or equal to 250 ft (76 m) resulting from an interruption in the pavement will be subject to the same evaluation as a whole subplot. Partial sublots less than 250 ft (76 m) shall be included with the previous subplot for evaluation purposes.

(c) Testing Procedure. One wheel track shall be tested per lane. Testing shall be performed 3 ft (1 m) from and parallel to the edge of the lane away from traffic. A guide shall be used to maintain the proper distance.

The profile trace generated shall have stationing indicated every 500 ft (150 m) at a minimum. Both ends of the profile trace shall be labeled with the following information: contract number, beginning and ending stationing, which direction is up on the trace, which direction the data was collected, and the device operator name(s). The top portion of the Department supplied form, "Profile Report of Pavement Smoothness" shall be completed and secured around the trace roll.

Although surface testing of intermediate lifts will not be required, they may be performed at the Contractor's option. When this option is chosen, the testing shall be performed and the profile traces shall be generated as described above.

The Engineer may perform his/her own testing at any time for monitoring and comparison purposes.

- (d) Trace Reduction and Bump Locating Procedure. All traces shall be reduced. Traces produced by a mechanical recorder shall be reduced using an electronic scanner and computer software. This software shall calculate the profile index of each subplot in in./mile (mm/km) and indicate any high points (bumps) in excess of 0.30 in. (8 mm) with a line intersecting the profile on the printout. Computerized recorders shall provide the same information.

The profile index of each track, average profile index of each subplot, average profile index of the lot and locations of bumps shall be recorded on the form.

All traces and reports shall be provided within two working days of completing the testing to the Engineer for the project file. Traces from either a computerized profile testing device or analysis software used with a manual profile testing device shall display the settings used for the data reduction. The Engineer will compare these settings with the approved settings from the PEV Program. If the settings do not match, the results will be rejected and the section shall be retested/reanalyzed with the appropriate settings.

The Engineer will use the results of the testing to evaluate paving methods and equipment. If the average profile index of a lot exceeds 40.0 in./mile (635 mm/km) for high-speed mainline pavement or 65.0 in./mile (1025 mm/km) for low-speed mainline pavement, the paving operation will be suspended until corrective action is taken by the Contractor.

- (e) Corrective Work. All bumps in excess of 0.30 in. (8 mm) in a length of 25 ft (8 m) or less shall be corrected. If the bump is greater than 0.50 in. (13 mm), the pavement shall be removed and replaced. The minimum length of pavement to be removed shall be 3 ft (900 mm).
- (1) High-Speed Mainline Pavement. Any subplot having a profile index within the range of, greater than 30.0 to 40.0 in./mile (475 to 635 mm/km) including bumps, shall be corrected to reduce the profile index to 30.0 in./mile (475 mm/km) or less on each trace. Any subplot having a profile index greater than 40.0 in./mile (635 mm/km) including bumps, shall be corrected to reduce the profile index to 30.0 in./mile (475 mm/km) or less on each trace, or replaced at the Contractor's option.
- (2) Low-Speed Mainline Pavement. Any subplot having a profile index within the range of, greater than 45.0 to 65.0 in./mile (710 to 1025 mm/km) including bumps, shall be corrected to reduce the profile index to 45.0 in./mile (710 mm/km) or less on each trace. Any subplot having a profile index greater than 65.0 in./mile (1025 mm/km) including bumps, shall be corrected to reduce the profile index to 45.0 in./mile (710 mm/km) or less on each trace, or replaced at the Contractor's option.

(3) Miscellaneous Pavement. Surface variations which exceed the 3/8 in. (10 mm) tolerance will be marked by the Engineer and shall be corrected by the Contractor.

Corrective work shall be completed using either an approved grinding device consisting of multiple saws or by removing and replacing the pavement. Corrective work shall be applied to the full lane width. When completed, the corrected area shall have uniform texture and appearance, with the beginning and ending of the corrected area squared normal to the centerline of the paved surface.

Upon completion of the corrective work, the surface of the subplot(s) shall be retested. The Contractor shall furnish the profile tracing(s) and the completed form(s) to the Engineer within two working days after corrections are made. If the profile index and/or bumps still do not meet the requirements, additional corrective work shall be performed.

Corrective work shall be at no additional cost to the Department.

(f) Smoothness Assessments. Assessments will be paid to or deducted from the Contractor for each subplot of mainline pavement, per the Smoothness Assessment Schedule. Assessments will be based on the average profile index of each subplot prior to performing any corrective work unless the Contractor has chosen to remove and replace the subplot. For sublots that are replaced, assessments will be based on the profile index determined after replacement.

Assessments will not be paid or deducted until all other contract requirements for the pavement are satisfied. Pavement that is corrected or replaced for reasons other than smoothness, shall be retested as stated herein.

SMOOTHNESS ASSESSMENT SCHEDULE (HMA Overlays)		
High-Speed Mainline Pavement Average Profile Index in./mile (mm/km)	Low-Speed Mainline Pavement Average Profile Index in./mile (mm/km)	Assessment per subplot
6.0 (95) or less	15.0 (240) or less	+\$150.00
>6.0 (95) to 10.0 (160)	>15.0 (240) to 25.0 (400)	+\$80.00
>10.0 (160) to 30.0 (475)	>25.0 (400) to 45.0 (710)	+\$0.00
>30.0 (475) to 40.0 (635)	>45.0 (710) to 65.0 (1025)	+\$0.00
Greater than 40.0 (635)	Greater than 65.0 (1025)	-\$300.00

Smoothness assessments will not be applied to miscellaneous pavement sections.”

Hot-Mix Asphalt (HMA) Pavement (Full-Depth)

Revise Article 407.09 of the Standard Specifications to read:

407.09 Surface Tests. The finished surface of the pavement shall be tested for smoothness according to Article 406.11, except as follows:

Two wheel tracks shall be tested per lane. Testing shall be performed 3 ft (1 m) from and parallel to each lane edge.

SMOOTHNESS ASSESSMENT SCHEDULE (Full-Depth HMA)		
High-Speed Mainline Pavement Average Profile Index in./mile (mm/km)	Low-Speed Mainline Pavement Average Profile Index in./mile (mm/km)	Assessment per subplot
6.0 (95) or less		+\$800.00
>6.0 (95) to 11.0 (175)	15.0 (240) or less	+\$550.00
>11.0 (175) to 17.0 (270)	>15.0 (240) to 25.0 (400)	+\$350.00
>17.0 (270) to 30.0 (475)	>25.0 (400) to 45.0 (710)	+\$0.00
>30.0 (475) to 40.0 (635)	>45.0 (710) to 65.0 (1025)	+\$0.00
Greater than 40.0 (635)	Greater than 65.0 (1025)	-\$500.00"

Delete the third paragraph of Article 407.12 of the Standard Specifications.

Portland Cement Concrete Pavement

Revise Article 420.10 of the Standard Specifications to read:

420.10 Surface Tests. The finished surface of the pavement shall be tested for smoothness according to Article 406.11, except as follows:

The finished surface of the pavement shall be tested for smoothness once the pavement has attained a flexural strength of 550 psi (3800 kPa) or a compressive strength of 3000 psi (20,700 kPa).

Two wheel tracks shall be tested per lane. Testing shall be performed 3 ft (1 m) from and parallel to each lane edge.

Membrane curing damaged during testing shall be repaired as directed by the Engineer at no additional cost to the Department.

No further texturing for skid resistance will be required for areas corrected by grinding. Protective coat shall be reapplied to ground areas according to Article 420.18 at no additional cost to the Department.

For pavement that is corrected by removal and replacement, the minimum length to be removed shall meet the requirements of either Class A or Class B patching.

SMOOTHNESS ASSESSMENT SCHEDULE (PCC)		
High-Speed Mainline Pavement Average Profile Index in./mile (mm/km)	Low-Speed Mainline Pavement Average Profile Index in./mile (mm/km)	Assessment per subplot
6.0 (95) or less		+\$1200.00
>6.0 (95) to 11.0 (175)	15.0 (240) or less	+\$950.00
>11.0 (175) to 17.0 (270)	>15.0 (240) to 25.0 (400)	+\$600.00
>17.0 (270) to 30.0 (475)	>25.0 (400) to 45.0 (710)	+\$0.00
>30.0 (475) to 40.0 (635)	>45.0 (710) to 65.0 (1025)	+\$0.00
Greater than 40.0 (635)	Greater than 65.0 (1025)	-\$750.00"

Delete the fourth paragraph of Article 420.20 of the Standard Specifications.

Testing Equipment

Revise Article 1101.10 of the Standard Specifications to read:

"1101.10 Pavement Surface Test Equipment. Required surface testing and analysis equipment and their jobsite transportation shall be provided by the Contractor.

- (a) 16 ft (5 m) Straightedge. The 16 ft (5 m) straightedge shall consist of a metal I-beam mounted between two wheels spaced 16 ft (5 m) between the axles. Scratcher bolts which can be easily and accurately adjusted, shall be set at the 1/4, 1/2, and 3/4 points between the axles. A handle suitable for pushing and guiding shall be attached to the straightedge.
- (b) Profile Testing Device. The profile testing device shall have a decal displayed to indicate it has been tested through the Profile Equipment Verification (PEV) Program administered by the Department.
 - (1) California Profilograph. The California Profilograph shall be either computerized or manual and have a frame 25 ft (8 m) in length supported upon multiple wheels at either end. The profile shall be recorded from the vertical movement of a wheel attached to the frame at mid point.

The California Profilograph shall be calibrated according to the manufacturer's recommendations and California Test 526. All calibration traces and calculations shall be submitted to the Engineer for the project file.

- (2) Inertial Profiler. The inertial profiler shall be either an independent device or a system that can be attached to another vehicle using one or two non-contact sensors to measure the pavement profile. The inertial profiler shall be capable of performing a simulation of the California Profilograph to provide results in the Profile Index format.

The inertial profiler shall be calibrated according to the manufacturer's recommendations. All calibration traces and calculations shall be submitted to the Engineer for the project file.

- (3) Trace Analysis. The Contractor shall reduce/evaluate these traces using a 0.00 in. (0.0 mm) blanking band and determine a Profile Index in in./mile (mm/km) for each section of finished pavement surface. Traces produced using a computerized profile testing device will be evaluated without further reduction. When using a manual profile testing device, the Contractor shall provide an electronic scanner, a computer, and software to reduce the trace. All analysis equipment (electronic scanner, computerized recorder, etc.) shall be able to accept 0.00 in. (0.0 mm) for the blanking band.

All traces from pavement sections tested with the profile testing device shall be recorded on paper with scales of 300:1 longitudinally and 1:1 vertically. Equipment and software settings of the profile testing device and analysis equipment shall be set to those values approved through the PEV Program.

The Engineer may retest the pavement at any time to verify the accuracy of the equipment."

80075

TEMPORARY EROSION AND SEDIMENT CONTROL (BDE)

Effective: January 1, 2012

Revise the first paragraph of Article 280.04(f) of the Standard Specifications to read:

"(f) Temporary Erosion Control Seeding. This system consists of seeding all erodible/bare areas to minimize the amount of exposed surface area. Seed bed preparation will not be required if the surface of the soil is uniformly smooth and in a loose condition. Light disking shall be done if the soil is hard packed or caked. Erosion rills greater than 1 in. (25 mm) in depth shall be filled and area blended with the surrounding soil. Fertilizer nutrients will not be required."

Delete the last sentence of Article 280.08(e) of the Standard Specifications.

80286

TRAFFIC CONTROL DEFICIENCY DEDUCTION (BDE)

Effective: August 1, 2011

Revise the third sentence of the third paragraph of Article 105.03(b) of the Standard Specifications to read:

“The daily monetary deduction will be \$2,500.”

80273

TRAINING SPECIAL PROVISIONS (BDE) This Training Special Provision supersedes Section 7b of the Special Provision entitled "Specific Equal Employment Opportunity Responsibilities," and is in implementation of 23 U.S.C. 140(a).

As part of the contractor's equal employment opportunity affirmative action program, training shall be provided as follows:

The contractor shall provide on-the-job training aimed at developing full journeyman in the type of trade or job classification involved. The number of trainees to be trained under this contract will be 3 . In the event the contractor subcontracts a portion of the contract work, he shall determine how many, if any, of the trainees are to be trained by the subcontractor, provided however, that the contractor shall retain the primary responsibility for meeting the training requirements imposed by this special provision. The contractor shall also insure that this Training Special Provision is made applicable to such subcontract. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training.

The number of trainees shall be distributed among the work classifications on the basis of the contractor's needs and the availability of journeymen in the various classifications within the reasonable area of recruitment. Prior to commencing construction, the contractor shall submit to the Illinois Department of Transportation for approval the number of trainees to be trained in each selected classification and training program to be used. Furthermore, the contractor shall specify the starting time for training in each of the classifications. The contractor will be credited for each trainee employed by him on the contract work who is currently enrolled or becomes enrolled in an approved program and will be reimbursed for such trainees as provided hereinafter.

Training and upgrading of minorities and women toward journeyman status is a primary objective of this Training Special Provision. Accordingly, the contractor shall make every effort to enroll minority trainees and women (e.g. by conducting systematic and direct recruitment through public and private sources likely to yield minority and women trainees) to the extent such persons are available within a reasonable area of recruitment. The contractor will be responsible for demonstrating the steps that he has taken in pursuance thereof, prior to a determination as to whether the contractor is in compliance with this Training Special Provision. This training commitment is not intended, and shall not be used, to discriminate against any applicant for training, whether a member of a minority group or not.

No employee shall be employed as a trainee in any classification in which he has successfully completed a training course leading to journeyman status or in which he has been employed as a journeyman. The contractor should satisfy this requirement by including appropriate questions in the employee application or by other suitable means. Regardless of the method used the contractor's records should document the findings in each case.

The minimum length and type of training for each classification will be as established in the training program selected by the contractor and approved by the Illinois Department of Transportation and the Federal Highway Administration. The Illinois Department of Transportation and the Federal Highway Administration shall approve a program, if it is reasonably calculated to meet the equal employment opportunity obligations of the contractor and to qualify the average trainee for journeyman status in the classification concerned by the end of the training period. Furthermore, apprenticeship programs registered with the U.S. Department of Labor, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau and training programs approved by not necessarily sponsored by the U.S. Department of Labor, Manpower Administration, Bureau of Apprenticeship and Training shall also be considered acceptable provided it is being administered in a manner consistent with the equal employment obligations of Federal-aid highway construction contracts. Approval or acceptance of a training program shall be obtained from the State prior to commencing work on the classification covered by the program. It is the intention of these provisions that training is to be provided in the construction crafts rather than clerk-typists or secretarial-type positions. Training is permissible in lower level management positions such as office engineers, estimators, timekeepers, etc., where the training is oriented toward construction applications. Training in the laborer classification may be permitted provided that significant and meaningful training is provided and approved by the Illinois Department of Transportation and the Federal Highway Administration. Some offsite training is permissible as long as the training is an integral part of an approved training program and does not comprise a significant part of the overall training.

Except as otherwise noted below, the contractor will be reimbursed 80 cents per hour of training given an employee on this contract in accordance with an approved training program. As approved by the Engineer, reimbursement will be made for training of persons in excess of the number specified herein. This reimbursement will be made even though the contractor receives additional training program funds from other sources, provided such other source does not specifically prohibit the contractor from receiving other reimbursement. Reimbursement for offsite training indicated above may only be made to the contractor where he does one or more of the following and the trainees are concurrently employed on a Federal-aid project; contributes to the cost of the training, provides the instruction to the trainee or pays the trainee's wages during the offsite training period.

No payment shall be made to the contractor if either the failure to provide the required training, or the failure to hire the trainee as a journeyman, is caused by the contractor and evidences a lack of good faith on the part of the contractor in meeting the requirement of this Training Special Provision. It is normally expected that a trainee will begin his training on the project as soon as feasible after start of work utilizing the skill involved and remain on the project as long as training opportunities exist in his work classification or until he has completed his training program.

It is not required that all trainees be on board for the entire length of the contract. A contractor will have fulfilled his responsibilities under this Training Special Provision if he has provided acceptable training to the number of trainees specified. The number trained shall be determined on the basis of the total number enrolled on the contract for a significant period.

Trainees will be paid at least 60 percent of the appropriate minimum journeyman's rate specified in the contract for the first half of the training period, 75 percent for the third quarter of the training period, and 90 percent for the last quarter of the training period, unless apprentices or trainees in an approved existing program are enrolled as trainees on this project. In that case, the appropriate rates approved by the Departments of Labor or Transportation in connection with the existing program shall apply to all trainees being trained for the same classification who are covered by this Training Special Provision.

The contractor shall furnish the trainee a copy of the program he will follow in providing the training. The contractor shall provide each trainee with a certification showing the type and length of training satisfactorily complete.

The contractor will provide for the maintenance of records and furnish periodic reports documenting his performance under this Training Special Provision.

METHOD OF MEASUREMENT The unit of measurement is in hours.

BASIS OF PAYMENT This work will be paid for at the contract unit price of 80 cents per hour for TRAINEES. The estimated total number of hours, unit price and total price have been included in the schedule of prices.

20338

WARM MIX ASPHALT (BDE)

Effective: January 1, 2012

Description. This work shall consist of designing, producing and constructing Warm Mix Asphalt (WMA) in lieu of Hot Mix Asphalt (HMA) for N30, N50, and N70 mixtures at the Contractor's option. Work shall be according to Sections 406, 407, 408, 1030, and 1102 of the Standard Specifications, except as modified herein. In addition, any references to HMA in the Standard Specifications, or the special provisions shall be construed to include WMA.

WMA is an asphalt mixture which can be produced at temperatures lower than allowed for HMA utilizing approved WMA technologies. WMA technologies are defined as the use of additives or processes which allow a reduction in the temperatures at which HMA mixes are produced and placed. WMA is produced by the use of additives, a water foaming process, or combination of both. Additives include minerals, chemicals or organics incorporated into the asphalt binder stream in a dedicated delivery system. The process of foaming injects water into the asphalt binder stream, just prior to incorporation of the asphalt binder with the aggregate.

Approved WMA technologies may also be used in HMA provided all the requirements specified herein, with the exception of temperature, are met. However, asphalt mixtures produced at temperatures in excess of 275 °F (135 °C) will not be considered WMA when determining the grade reduction of the virgin asphalt binder grade.

Materials.

Add the following to Article 1030.02 of the Standard Specifications.

“(h) Warm Mix Asphalt (WMA) Technologies (Note 3)”

Add the following note to Article 1030.02 of the Standard Specifications.

“Note 3. Warm mix additives or foaming processes shall be selected from the current Bureau of Materials and Physical Research Approved List, “Warm-Mix Asphalt Technologies”.”

Equipment.

Revise the first paragraph of Article 1102.01 of the Standard Specifications to read:

“**1102.01 Hot-Mix Asphalt Plant.** The hot-mix asphalt (HMA) plant shall be the batch-type, continuous-type, or dryer drum plant. The plants shall be evaluated for prequalification rating and approval to produce HMA according to the current Bureau of Materials and Physical Research Policy Memorandum, “Approval of Hot-Mix Asphalt Plants and Equipment”. Once approved, the Contractor shall notify the Bureau of Materials and Physical Research to obtain approval of all plant modifications. The plants shall not be used to produce mixtures concurrently for more than one project or for private work unless permission is granted in writing by the Engineer. The plant units shall be so designed, coordinated and operated that they will

function properly and produce HMA having uniform temperatures and compositions within the tolerances specified. The plant units shall meet the following requirements.”

Add the following to Article 1102.01(a) of the Standard Specifications.

“(13) Equipment for Warm Mix Technologies.

- a. Foaming. Metering equipment for foamed asphalt shall have an accuracy of ± 2 percent of the actual water metered. The foaming control system shall be electronically interfaced with the asphalt binder meter.
- b. Additives. Additives shall be introduced into the plant according to the supplier's recommendations and shall be approved by the Engineer. The system for introducing the WMA additive shall be interlocked with the aggregate feed or weigh system to maintain correct proportions for all rates of production and batch sizes.”

Mix Design Verification.

Add the following to Article 1030.04 of the Standard Specifications.

“(d) Warm Mix Technologies.

- (1) Foaming. WMA mix design verification will not be required when foaming technology is used alone (without WMA additives). However, the foaming technology shall only be used on HMA designs previously approved by the Department.
- (2) Additives. WMA mix designs utilizing additives shall be submitted to the Engineer for mix design verification. Additional mixture verification requirements include Hamburg Wheel testing according to Illinois Modified AASHTO T324 and tensile strength testing according to Illinois Modified AASHTO T283 which shall meet the criteria in Tables 1 and 2 respectively herein. The Contractor shall provide the additional material as follows:
 - a. Four gyratory specimens to be prepared in the Contractor's lab according to Illinois Modified AASHTO T324.
 - b. Sufficient mixture to conduct tensile strength testing according to Illinois Modified AASHTO T283.

Table 1. Illinois Modified AASHTO T324 Requirements ^{1/}

Asphalt Binder Grade	# Wheel Passes	Max Rut Depth in. (mm)
PG 76-XX	20,000	1/2 in. (12.5 mm)
PG 70-XX	15,000	1/2 in. (12.5 mm)
PG 64-XX	10,000	1/2 in. (12.5 mm)

PG 58-XX		
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1/ Loose WMA shall be oven aged at 270 ± 5 °F (132 ± 3 °C) for two hours prior to gyratory compaction of Hamburg Wheel specimens.

Table 2. Tensile Strength Requirements

Asphalt Binder Grade	Tensile Strength psi (kPa)	
	Minimum	Maximum
PG 76-XX	80 (552)	200 (1379)
PG 70-XX		
PG 64-XX	60 (414)	200 (1379)"
PG 58-XX		

Production.

Revise the second paragraph of Article 1030.06(a) of the Standard Specifications to read:

“At the start of mix production for HMA, WMA, and HMA using WMA technologies, QC/QA mixture start-up will be required for the following situations; at the beginning of production of a new mix of a new mixture design, at the beginning of each production season, and at every plant utilized to produce mixtures, regardless of the mix.”

Insert the following after the sixth paragraph of Article 1030.06(a) of the Standard Specifications:

“Warm mix technologies shall be as follows.

- (1) Mixture sampled to represent the test strip shall include additional material sufficient for the Department to conduct Hamburg Wheel testing according to Illinois Modified AASHTO T324 and tensile strength testing according to Illinois Modified AASHTO T283 (approximately 110 lb (50 kg) total).
- (2) Upon completion of the start-up, WMA production shall cease. The Contractor may revert to HMA production provided a start-up has been previously completed for the current construction season for the mix design. WMA may resume once all the test results, including Hamburg Wheel results are completed and found acceptable by the Engineer.”

Add the following after the first paragraph of Article 1030.05(d)(2)c. of the Standard Specifications:

“During production of each WMA mixture or HMA utilizing WMA technologies, the Engineer will request a minimum of one randomly located sample, identified by the Engineer, for Hamburg Wheel testing to determine compliance with the requirements specified in Table 1 herein.”

Quality Control/Quality Assurance Testing.

Revise the table in Article 1030.05(d)(2)a. of the Standard Specifications to read:

Parameter	Frequency of Tests		Test Method See Manual of Test Procedures for Materials
	High ESAL Mixture Low ESAL Mixture	All Other Mixtures	
Aggregate Gradation % passing sieves: 1/2 in. (12.5 mm), No. 4 (4.75 mm), No. 8 (2.36 mm), No. 30 (600 μm) No. 200 (75 μm) Note 1.	1 washed ignition oven test on the mix per half day of production Note 4.	1 washed ignition oven test on the mix per day of production Note 4.	Illinois Procedure
Asphalt Binder Content by Ignition Oven Note 2.	1 per half day of production	1 per day	Illinois-Modified AASHTO T 308
VMA Note 3.	Day's production ≥ 1200 tons: 1 per half day of production Day's production < 1200 tons: 1 per half day of production for first 2 days and 1 per day thereafter (first sample of the day)	N/A	Illinois-Modified AASHTO R 35
Air Voids Bulk Specific Gravity of Gyrotory Sample Note 5.	Day's production ≥ 1200 tons: 1 per half day of production Day's production < 1200 tons: 1 per half day of production for first 2 days and 1 per day thereafter (first sample of the day)	1 per day	Illinois-Modified AASHTO T 312
Maximum Specific Gravity of Mixture	Day's production ≥ 1200 tons: 1 per half day of production	1 per day	Illinois-Modified AASHTO T 209

Parameter	Frequency of Tests	Frequency of Tests	Test Method See Manual of Test Procedures for Materials
	High ESAL Mixture Low ESAL Mixture	All Other Mixtures	
	Day's production < 1200 tons: 1 per half day of production for first 2 days and 1 per day thereafter (first sample of the day)		

Note 1. The No. 8 (2.36 mm) and No. 30 (600 μ m) sieves are not required for All Other Mixtures.

Note 2. The Engineer may waive the ignition oven requirement for asphalt binder content if the aggregates to be used are known to have ignition asphalt binder content calibration factors which exceed 1.5 percent. If the ignition oven requirement is waived, other Department approved methods shall be used to determine the asphalt binder content.

Note 3. The G_{sb} used in the voids in the mineral aggregate (VMA) calculation shall be the same average G_{sb} value listed in the mix design.

Note 4. The Engineer reserves the right to require additional hot bin gradations for batch

Note 5. The WMA compaction temperature for mixture volumetric testing shall be 270 ± 5 °F (132 ± 3 °C) for quality control testing. The WMA compaction temperature for quality assurance testing will be 270 ± 5 °F (132 ± 3 °C) if the mixture is not allowed to cool to room temperature. If the mixture is allowed to cool to room temperature it shall be reheated to standard HMA compaction temperatures."

Construction Requirements.

Revise the second paragraph of Article 406.06(b)(1) of the Standard Specifications to read:

"The HMA shall be delivered at a temperature of 250 to 350 °F (120 to 175 °C). WMA shall be delivered at a minimum temperature of 215 °F (102 °C)."

Basis of Payment.

This work will be paid at the contract unit price bid for the HMA pay items involved. Anti-strip will not be paid for separately, but shall be considered as included in the cost of the work.

80288

465

HIGH LOAD MULTI-ROTATIONAL BEARINGS

Effective: October 13, 1988

Revised: October 15, 2011

Description. This work shall consist of furnishing and installing High Load Multi-Rotational type bearing assemblies at the locations shown on the plans.

High Load Multi-Rotational (HLMR) bearings shall be one of the following at the Contractors option unless otherwise restricted on the plans:

- a) Pot Bearings. These bearings shall be manufactured so that the rotational capability is provided by an assembly having a rubber disc of proper thickness, confined in a manner so it behaves like a fluid. The disc shall be installed, with a snug fit, into a steel cylinder and confined by a tight fitting piston. The outside diameter of the piston shall be no more than 0.03 in. (750 microns) less than the inside diameter of the cylinder at the interface level of the piston and rubber disc. The sides of the piston shall be beveled. PTFE sheets, or silicone grease shall be utilized to facilitate rotation of the rubber disc. Suitable brass sealing rings shall be provided to prevent any extrusion between piston and cylinder.
- b) Shear Inhibited Disc Type Bearing. The Structural Element shall be restricted from shear by the pin and ring design and need not be completely confined as with the Pot Bearing design. The disc shall be a molded monolithic Polyether Urethane compound.

These bearings shall be further subdivided into one or more of the following types:

- 1) Fixed. These allow rotation in any direction but are fixed against translation.
- 2) Guided Expansion. These allow rotation in any direction but translation only in limited directions.
- 3) Non-Guided Expansion. These allow rotation and translation in any direction.

The HLMR bearings shall be of the type specified and designed for the loads shown on the plans. The design of the top and bottom bearing plates are based on detail assumptions which are not applicable to all suppliers and may require modifications depending on the supplier chosen by the Contractor. The overall depth dimension for the HLMR bearings shall be as specified on the plans. The horizontal dimensions shall be limited to the available bearing seat area. Any modifications required to accommodate the bearings chosen shall be submitted to the Engineer for approval prior to ordering materials. Modifications required shall be made at no additional cost to the State. Inverted pot bearing configurations will not be permitted.

The Contractor shall comply with all manufacturer's material, fabrication and installation requirements specified.

All bearings shall be supplied by prequalified manufacturers. The Department will maintain a list of prequalified manufacturers.

Submittals. Shop drawings shall be submitted to the Engineer for approval according to Article 105.04 of the Standard Specifications. In addition the Contractor shall furnish certified copies of the bearing manufacturer's test reports on the physical properties of the component materials for the bearings to be furnished and a certification by the bearing manufacturer stating the bearing assemblies furnished conform to all the requirements shown on the plans and as herein specified. Submittals with insufficient test data and supporting certifications will be rejected.

Materials. The materials for the HLMR bearing assemblies shall be according to the following:

- (a) Elastomeric Materials. The rubber disc for Pot bearings shall be according to Article 1083.02(a) of the Standard Specifications.
- (b) Polytetrafluoroethylene (PTFE) Material. The PTFE material shall be according to Article 1083.02(b) of the Standard Specifications.
- (c) Stainless Steel Sheets: The stainless steel sheets shall be of the thickness specified and shall be according to ASTM A 240 (A 240M), Type 302 or 304. The sliding surface shall be polished to a bright mirror finish less than 20 micro-in. (510 nm) root mean square.
- (d) Structural Steel. All structural steel used in the bearing assemblies shall be according to AASHTO M 270, Grade 50 (M 270M Grade 345), unless otherwise specified.
- (e) Threaded studs. The threaded stud, when required, shall conform to the requirements of Article 1083.02(d)(4) of the Standard Specifications.

- (f) Polyether Urethane for Disc bearings shall be according to all of the following requirements:

PHYSICAL PROPERTY	ASTM TEST METHOD	REQUIREMENTS	
Hardness, Type D durometer	D 2240	45 Min	65 Max
Tensile Stress, psi (kPa) At 100% elongation, min	D 412	1500 psi (10,350 kPa)	2300 psi (15,900 kPa)
Tensile Stress, psi (kPa) At 200% elongation, min	D 412	2800 psi (19,300 kPa)	4000 psi (27,600 kPa)
Tensile Strength, psi (kPa), min	D 412	4000 psi (27,600 kPa)	6000 psi (41,400 kPa)
Ultimate Elongation, %, min	D 412	350	220
Compression Set 22 hr. at 158 °F (70 °C), Method B %, max	D 395	40	40

The physical properties for a durometer hardness between the minimum and maximum values shown above shall be determined by straight line interpolation.

Design. The fabricator shall design the HLMR bearings according to the appropriate AASHTO Design Specifications noted on the bridge plans.

Fabrication. The bearings shall be complete factory-produced assemblies. They shall provide for rotation in all directions and for sliding, when specified, in directions as indicated on the plans. All bearings shall be furnished as a complete unit from one manufacturing source. All material used in the manufacture shall be new and unused with no reclaimed material incorporated into the finished assembly.

The translation capability for both guided and non-guided expansion bearings shall be provided by means of a polished stainless steel sliding plate that bears on a PTFE sheet bonded and recessed to the top surface of the piston or disc. The sliding element of expansion bearings shall be restrained against movement in the fixed direction by exterior guide bars capable of resisting the horizontal forces or 20 percent of the vertical design load on the bearing applied in any direction, whichever is greater. The sliding surfaces of the guide bar shall be of PTFE sheet and stainless steel. Guiding off of the fixed base, or any extension of the base, will not be permitted.

Structural steel bearing plates shall be fabricated according to Article 505.04(l) of the Standard Specifications. Prior to shipment the exposed edges and other exposed portions of the structural steel bearing plates shall be cleaned and painted according to Articles 506.03 and 506.04 of the Standard Specifications. Painting shall be with the paint specified for shop painting of structural steel. During cleaning and painting the stainless steel, PTFE sheet and neoprene shall be protected from abrasion and paint.

PTFE sheets shall be bonded to steel under factory controlled conditions using heat and pressure for the time required to set the epoxy adhesive used. The PTFE sheet shall be free from bubbles and the sliding surface shall be burnished to an absolutely smooth surface.

The steel piston and the steel cylinder for pot bearings shall each be machined from a solid piece of steel. The steel base cylinder shall be either integrally machined, recessed into with a snug fit, or continuously welded to its bottom steel bearing plate.

Packaging. Each HLMR bearing assembly shall be fully assembled at the manufacturing plant and delivered to the construction site as complete units. The assemblies shall be packaged, crated or wrapped so the assemblies will not be damaged during handling, transporting and shipping. The bearings shall be held together with removable restraints so sliding surfaces are not damaged.

Centerlines shall be marked on both top and base plates for alignment in the field. The bearings shall be shipped in moisture-proof and dust-proof covers.

Performance Testing. The following performance tests are required. All tests shall be performed by the manufacturer prior to shipment. Where lot testing is permitted, a lot size shall be the number of bearings per type on the project but not to exceed 25 bearings per type.

Dimension Check. Each bearing shall be checked dimensionally to verify all bearing components are within tolerances. Failure to satisfy any dimensional tolerance shall be grounds for rejecting the bearing component or the entire bearing assembly.

Clearance Test. This test shall be performed on one bearing per lot. The bearing selected for this test shall be the one with the least amount of clearance based on the dimension check. The bearing assembly shall be loaded to its service limit state rated capacity at its full design rotation but not less than 0.02 radians to verify the required clearances exist. This test shall be performed twice for each bearing with the rotation oriented longitudinally with the bridge once in each direction. Any visual signs of rubbing or binding shall be grounds for rejection of the lot.

Proof Load Test. This test shall be performed on one bearing per lot. The bearing assembly shall be load tested to 150 percent of the service limit state rated capacity at a rotation of 0.02 radians. The load shall be maintained for 5 minutes, removed then reapplied for 5 minutes. If the load drops below the required value during either application, the test shall be restarted from the beginning. This test shall be performed twice for each bearing with the rotation oriented longitudinally with the bridge once in each direction.

The bearing shall be visually examined both during the test and upon disassembly after the test. Any resultant visual defects include, but are not limited to:

1. Extruded or deformed elastomer, polyether urethane, or PTFE.
2. Insufficient clearances such as evidence of metal to metal contact between the pot wall and the top plate.
3. Damaged components such as cracked steel, damaged seal rings, or damaged limiting rings.
4. Bond failure.

If any of the above items are found it shall be grounds for rejection of the lot.

Sliding Friction Test. For expansion bearings, this test shall be performed on one bearing per lot. The sliding surfaces shall be thoroughly cleaned with a degreasing solvent. No lubrication other than that specified for the bearing shall be used. The bearing shall be loaded to its service limit state rated capacity for 1 hour prior to and throughout the duration of the sliding test. At least 12 cycles of plus and minus sliding with an amplitude equaling the smaller of the design displacement and 1 inch (25 mm) shall then be applied. The average sliding speed shall be between 0.1 inch and 1.0 inches (2.5 mm and 25 mm) per minute. The sliding friction coefficient shall be computed for each direction of each cycle and its mean and standard deviation shall be computed for the sixth through twelfth cycles.

The friction coefficient for the first movement and the mean plus two standard deviations for the sixth through twelfth cycles shall not exceed the design value used. In addition, the mean value for the sixth through twelfth cycles shall not exceed 2/3 of the design value used. Failure of either of these shall result in rejection of the lot.

The bearing shall also be visually examined both during and after the testing, any resultant defects, such as bond failure, physical destruction, or cold flow of the PTFE shall also be cause for rejection of the lot.

The Contractor shall furnish to the Department a notarized certification from the bearing manufacturer stating the HLMR bearings have been performance tested as specified. The Contractor shall also furnish to the Engineer of Tests at the Bureau of Materials and Physical Research (126 East Ash Springfield, IL 62704) a purchase order prior to fabrication. The purchase order shall contain, as a minimum, the quantity and size of each type of bearing furnished. The Department reserves the right to perform any of the specified tests on one or more of the furnished bearings. If the tested bearing shows failure it shall be replaced and the remaining bearings shall be similarly tested for acceptance at the Contractor's expense.

When directed by the Engineer, the manufacturer shall furnish an additional bearing assembly and/or random samples of component materials used in the bearings, for testing by the Department, according to Article 1083.04 of the Standard Specifications.

Installation. The HLMR bearings shall be erected according to Article 521.05 of the Standard Specifications.

Exposed edges and other exposed portions of the structural steel plates shall be field painted as specified for Structural Steel.

Basis of Payment. This work will be paid for at the contract unit price each for HIGH LOAD MULTI-ROTATIONAL BEARINGS, FIXED; HIGH LOAD MULTI-ROTATIONAL BEARINGS, GUIDED EXPANSION; or HIGH LOAD MULTI-ROTATIONAL BEARINGS, NON-GUIDED EXPANSION of the load rating specified.

When the fabrication and erection of HLMR bearings is accomplished under separate contracts, the applicable requirements of Article 505.09 shall apply.

Fabricated HLMR bearings and other materials complying with the requirements of this item, furnished and accepted, will be paid for at the contract unit price each for FURNISHING HIGH LOAD MULTI-ROTATIONAL BEARINGS, FIXED, FURNISHING HIGH LOAD MULTI-ROTATIONAL BEARINGS, GUIDED EXPANSION or FURNISHING HIGH LOAD MULTI-ROTATIONAL BEARINGS, NON-GUIDED EXPANSION of the load rating specified.

Storage and care of fabricated HLMR bearings and other materials complying with the requirements of this item by the Fabrication Contractor beyond the specified storage period, will be paid for at the contract unit price per calendar day for STORAGE OF HIGH LOAD MULTI-ROTATIONAL BEARINGS if a pay item is provided for in the contract, or will be paid for according to Article 109.04 if a pay item is not provided in the contract.

HLMR bearings and other materials fabricated under this item erected according to the requirements of the specifications, and accepted, will be paid for at the contract unit price each for ERECTING HIGH LOAD MULTI-ROTATIONAL BEARINGS, FIXED, ERECTING HIGH LOAD MULTI-ROTATIONAL BEARINGS, GUIDED EXPANSION or ERECTING HIGH LOAD MULTI-ROTATIONAL BEARINGS, NON-GUIDED EXPANSION of the load rating specified.

MODULAR EXPANSION JOINT

Effective: May 19, 1994

Revised: January 1, 2007

Description. This work shall consist of furnishing and installing a modular expansion joint(s) as shown on the plans, and according to applicable portions of the Standard Specifications.

General. The expansion joint device shall be capable of handling the specified longitudinal movement. In addition, when specified, the joint shall also be capable of handling the differential non-parallel longitudinal movement. The expansion joint device shall effectively seal the joint opening in the deck surface and barrier curbs against the entrance of water and foreign materials. There shall be no appreciable change in the deck surface plane with the expansion and contraction movements of the bridge.

The device shall consist of a shop-fabricated modular assembly of transverse neoprene seals, edge and separation beams, bearing on support bars spanning the joint opening. The assembly shall maintain equal distances between intermediate support rails, at any cross section, for the entire length of the joint. The assembly shall be stable under all conditions of expansion and contraction, using a system of longitudinal control springs and upper and lower support beam bearings and springs.

At sidewalks, concrete median barriers and concrete parapet joints, a sliding steel plate shall be fabricated and installed according to the plans. Painting or galvanizing of sliding steel plates shall be as specified on the plans.

The expansion joint system options shall be limited to the following pre-approved systems:

For Modular Expansion Joints:

- Steelflex system, by the D.S. Brown Company
- WABO system, by the Watson Bowman Acme Corporation
- LG System, by TechStar Incorporated.

For Swivel Modular Expansion Joints:

- MAURER Swivel system, by the D.S. Brown Company
- WABO X-CEL system, by the Watson Bowman Acme Corporation.

Pre-approval of the expansion joint system does not include material acceptance at the jobsite.

Submittals: Shop drawings and a copy of the calculations and support documents shall be submitted to the Engineer for approval according to Article 105.04 of the Standard Specifications. Submittals will be required for each modular expansion joint device specified. In addition the Contractor shall provide the Department with a certification of compliance by the manufacturer listing all materials in the system. The certification shall attest that the system conforms to the design and material requirements and be supported by a copy of the successful results of the fatigue tests performed on the system as herein specified. Submittals with insufficient test data and supporting certifications will be rejected.

The shop drawings shall include tables showing the total anticipated movements for each joint and the required setting width of the joint assemblies at various temperatures.

Design Requirements: The maximum vertical, transverse and horizontal rotations and displacements shall be defined and included in the design.

The expansion joint device(s) shall be designed, detailed and successfully tested, for non AASHTO LRFD designed structures, according to the requirements specified in NCHRP Report 402 "Fatigue Design of Modular Bridge Expansion Joints" and NCHRP Report 467 "Performance Testing for Modular Bridge Joint Systems" and for LRFD designed structures according Section 14 of the AASHTO LRFD Bridge Design Specifications.

Top, bottom and sides of support bars shall be restrained to prevent uplift, transmit bearing loads, and maintain the lateral position of the bars.

The total movement of each individual sealing element shall not exceed 3 in. (75 mm).

Materials:

- (a) Metals. The hot-rolled or extruded steel sections and the support bars shall meet the material requirements specified by the manufacturer.

Stainless steel sheets for the sliding surfaces of the support bars shall conform to the requirements of ASTM A240 (A240M) type 302 or 304.

The use of aluminum components in the modular joint will not be allowed.

- (b) Preformed Elastomeric Seals. The elastomeric sealing element shall be either an elastomeric compression seal meeting the requirements of AASHTO M 220 or strip seal meeting the requirements of Article 1052.02(a) of the Standard Specifications.

Lubricant/Adhesive for installing the preformed elastomeric elements in place shall be a one-part, moisture-curing, polyurethane and hydrocarbon solvent mixture as recommended by the manufacturer and containing not less than 65 percent solids.

- (c) Support Bar Bearings. Support bar bearings shall be fabricated from elastomeric pads with polytetrafluorethylene (PTFE) surfacing or from polyurethane compound with PTFE sliding surfaces. The elastomeric and PTFE materials shall meet the requirements of Section 1083 of the Standard Specifications.

- (d) Control Springs. Suitable elastomeric type springs which work longitudinally shall be used to maintain the equidistant spacing between transverse edge and separation beams when measured at any given cross section through the joint.

- (e) Support Bars. Support bars shall incorporate stainless steel sliding surfaces to permit joint movement.

Construction Requirements

General. Installation of expansion devices shall be according to the plans and shop drawings.

The fabricator of the modular joint assembly shall be AISC certified according to Article 106.08(a) of the Standard Specifications. In lieu of AISC certification, the Contractor may have all welding on main members (support bars and separation beams) observed and inspected by independent (third party) personnel at the Contractor's expense. Welding shall then be observed by a Certified Welding Inspector (CWI) in addition to the manufacturer's own welding inspection. Third party Non Destructive Examination (NDE) shall be performed by inspector(s), certified as level II in applicable methods, and all complete penetration beam-to-bar welds and butt joints in beams shall be UT inspected and 10 percent of fillets and partial pen welds shall be MT inspected.

The manufacturer of the expansion device shall provide a qualified technical service representative to supervise installation. Modular expansion joint devices shall be factory prefabricated assemblies, preset by the manufacturer prior to shipment with provisions for field adjustment for the ambient temperature at the time of installation.

Unless otherwise shown on the plans, the neoprene seals shall be continuous without any field splices.

All steel surfaces of the prefabricated assembly shall be shop painted with the primer specified for structural steel, except areas in direct contact with the seals, galvanized items and stainless steel surfaces.

The metal surfaces in direct contact with the neoprene seals shall be blast cleaned to permit a high strength bond of the lubricant/adhesive between the neoprene seal and mating metal surfaces.

The prefabricated joint assembly shall be properly positioned and attached to the structure according to the manufacturer's approved shop drawings. The attachment shall be sufficiently rigid to prevent non-thermal rotation, distortion, or misalignment of the joint system relative to the deck prior to casting the concrete. The joints shall be adjusted to the proper opening based on the ambient temperature at the time of installation and then all restraints preventing thermal movement shall be immediately released and/or removed. The joint assembly units shall be straight, parallel and in proper vertical alignment or reworked until proper adjustment is obtained prior to casting of the concrete around the joint.

After the joint system is installed, the joint area shall be flooded with water and inspected, from below for leakage. If leakage is observed, the joint system shall be repaired, at the expense of the Contractor, as recommended by the manufacturer and approved by the Engineer.

Method of Measurement. This work will be measured for payment in place, in feet (meters), along the centerline of the joint from face to face of the parapets or curbs. All sliding plate assemblies at the sidewalks, parapets and median barriers will not be measured for payment. The size will be defined as the specified longitudinal movement rounded up to the nearest 3 inch (75 mm) increment.

Basis of Payment: When only a longitudinal movement is specified, this work will be paid for at the contract unit price per foot (meter) for the MODULAR EXPANSION JOINT, of the size specified. When a differential non parallel movement is also specified, this work will be paid for at the contract unit price per foot (meter) for the MODULAR EXPANSION JOINT-SWIVEL, of the size specified.

All materials, equipment and labor required to fabricate, paint and install the sliding plate assemblies at the sidewalks, parapets and median barriers will not be paid for separately but shall be included in the price for the expansion joint specified.

When the fabrication and erection of modular expansion joint is accomplished under separate contracts, the applicable requirements of Article 505.09 shall apply, except the furnishing pay items shall include storage and protection of fabricated materials up to 75 days after the completion dates.

Fabricated modular expansion joints and other materials complying with the requirements of this item, furnished and accepted, will be paid for at the contract unit price per foot (meter) for FURNISHING MODULAR EXPANSION JOINT or FURNISHING MODULAR EXPANSION JOINT – SWIVEL of the size specified.

Storage and care of fabricated joints and other materials complying with the requirements of this item by the Fabrication Contractor beyond the specified storage period, will be paid for at the contract unit price per calendar day for STORAGE OF MODULAR EXPANSION JOINTS if a pay item is provided for in the contract, or will be paid for according to Article 109.04 if a pay item is not provided in the contract.

Modular expansion joints and other materials erected according to the requirements of the specifications, and accepted, will be paid for at the contract unit price per foot (meter) for ERECTING MODULAR EXPANSION JOINT or ERECTING MODULAR EXPANSION JOINT - SWIVEL of the size specified.

MECHANICALLY STABILIZED EARTH RETAINING WALLS

Effective: February 3, 1999

Revised: October 15, 2011

Description. This work shall consist of preparing the design, furnishing the materials, and constructing the mechanically stabilized earth (MSE) retaining wall to the lines, grades and dimensions shown in the contract plans and as directed by the Engineer.

General. The MSE wall consists of a concrete leveling pad, precast concrete face panels, a soil reinforcing system, select fill and concrete coping (when specified). The soil reinforcement shall have sufficient strength, quantity, and pullout resistance, beyond the failure surface within the select fill, as required by design. The material, fabrication, and construction shall comply with this Special Provision and the requirements specified by the supplier of the wall system selected by the Contractor for use on the project.

The MSE retaining wall shall be one of the following pre-approved wall systems:

ARES Wall: Tensar Earth Technologies

Stabilized Earth: T&B Structural Systems

MSE Plus: SSL Construction Products

Reinforced Earth: The Reinforced Earth Company

Retained Earth: The Reinforced Earth Company

Strengthened Soil: Shaw Technologies

Tricon Retained Soil: Tricon Precast

GeoMega System: The Reinforced Earth Company

Sine Wall: Sine Wall, LLC

Sanders MSE Wall: Sanders Pre-Cast Concrete Systems Company

EarthTrac HA: Earth Tec International, LLC

Pre-approval of the wall system does not include material acceptance at the jobsite.

Submittals. The wall system supplier shall submit complete design calculations and shop drawings to the Engineer according to Article 1042.03(b) of the Standard Specifications no later than 90 days prior to beginning construction of the wall. No work or ordering of materials for the structure shall be done by the Contractor until the submittal has been approved in writing by the Engineer. All submittals shall be sealed by an Illinois Licensed Structural Engineer and shall include all details, dimensions, quantities and cross sections necessary to construct the wall and shall include, but not be limited to, the following items:

- (a) Plan, elevation and cross section sheet(s) for each wall showing the following:
 - (1) A plan view of the wall indicating the offsets from the construction centerline to the face of the wall at all changes in horizontal alignment. The plan view shall show the limits of soil reinforcement and stations where changes in length and/or size of reinforcement occur. The centerline shall be shown for all drainage structures or pipes behind or passing through and/or under the wall.

- (2) An elevation view of the wall indicating the elevations of the top of the panels. These elevations shall be at or above the top of exposed panel line shown on the contract plans. This view shall show the elevations of the top of the leveling pads, all steps in the leveling pads and the finished grade line. Each panel type, the number, size and length of soil reinforcement connected to the panel shall be designated. The equivalent uniform applied bearing pressure shall be shown for each designed wall section.
 - (3) A listing of the summary of quantities shall be provided on the elevation sheet of each wall.
 - (4) Typical cross section(s) showing the limits of the reinforced select fill volume included within the wall system, soil reinforcement, embankment material placed behind the select fill, precast face panels, and their relationship to the right-of-way limits, excavation cut slopes, existing ground conditions and the finished grade line.
 - (5) All general notes required for constructing the wall.
- (b) All details for the concrete leveling pads, including the steps, shall be shown. The top of the leveling pad shall be located at or below the theoretical top of the leveling pad line shown on the contract plans. The theoretical top of leveling pad line shall be 3.5 ft. (1.1 m) below finished grade line at the front face of the wall, unless otherwise shown on the plans.
 - (c) Where concrete coping or barrier is specified, the panels shall extend up into the coping or barrier as shown in the plans. The top of the panels may be level or sloped to satisfy the top of exposed panel line shown on the contract plans. Cast-in-place concrete will not be an acceptable replacement for panel areas below the top of exposed panel line. As an alternative to cast in place coping, the Contractor may substitute a precast coping, the details of which must be included in the shop drawings and approved by the Engineer.
 - (d) All panel types shall be detailed. The details shall show all dimensions necessary to cast and construct each type of panel, all reinforcing steel in the panel, and the location of soil reinforcement connection devices embedded in the panels. These panel embed devices shall not be in contact with the panel reinforcement steel.
 - (e) All details of the wall panels and soil reinforcement placement around all appurtenances located behind, on top of, or passing through the soil reinforced wall volume such as parapets with anchorage slabs, coping, foundations, and utilities etc. shall be clearly indicated. Any modifications to the design of these appurtenances to accommodate a particular system shall also be submitted.
 - (f) When specified on the contract plans, all details of architectural panel treatment, including color, texture and form liners shall be shown.

- (g) The details for the connection between concrete panels, embed devices, and soil reinforcement shall be shown.

The initial submittal shall include three sets of shop drawings and one set of calculations. One set of drawings will be returned to the Contractor with any corrections indicated. After approval, the Contractor shall furnish the Engineer with ten (10) sets of corrected plan prints for distribution by the Department. No work or ordering of materials for the structure shall be done until the submittal has been approved by the Engineer.

Materials. The MSE walls shall conform to the supplier's standards as previously approved by the Department, and the following:

- (a) The soil reinforcing system, which includes the soil reinforcement, panel embeds and all connection devices, shall be according to the following:

Inextensible Soil Reinforcement. Steel reinforcement shall be either epoxy coated or galvanized. Epoxy coatings shall be according to Article 1006.10(a)(2), except the minimum thickness of epoxy coating shall be 18 mils (457 microns). No bend test will be required. Galvanizing shall be according to AASHTO M 232 or AASHTO M 111 as applicable.

Mesh and Loop Panel Embeds	AASHTO M 32 /M 32M and M 55/M 55M
Strips	ASTM A 572 Grade 65 (450)
Tie Strip Panel Embeds	AASHTO M 270/M 270M Grade 50 (345) or ASTM A1011 HSLAS Grade 50 (345) Class 2

Extensible Soil Reinforcement. Geosynthetic reinforcement shall be monolithically fabricated from virgin high density polyethylene (HDPE) or high tenacity polyester (HTPET) resins having the following properties verified by mill certifications:

<u>Property for Geosynthetic Reinforcement</u>	<u>Value</u>	<u>Test</u>
Minimum Tensile Strength	**	ASTM 6637

** as specified in the approved design calculations and shown on the shop drawings.

<u>Property for HDPE</u>	<u>Value</u>	<u>Test</u>
Melt Flow Rate (g/cm)	0.060 – 0.150	ASTM D 1238, Procedure B
Density (g/cu m)	0.941 – 0.965	ASTM D 792
Carbon Black	2% (min)	ASTM D 4218

<u>Property for HTPET</u>	<u>Value</u>	<u>Test</u>
Carboxyl End Group (max) (mmol/kg)	<30	GRI-GG7
Molecular Weight (Mn)	>25,000	GRI-GG8

Panel embed/connection devices used with geosynthetic soil reinforcement shall be manufactured from virgin or recycled polyvinyl chloride having the following properties:

<u>Property for Polyvinyl Chloride</u>	<u>Value</u>	<u>Test</u>
Heat Deflection Temperature (°F)	155 - 164	ASTM D 1896
Notched IZOD 1/8 inch @ 73°F (ft-lb/in)	4 - 12	ASTM D 256
Coefficient of Linear Exp. (in/in/°F)	3.5 - 4.5	ASTM D 696
Hardness, Shore D	79	ASTM D 2240

<u>Property for Polypropylene</u>	<u>Value</u>	<u>Test</u>
Melt Flow Rate (g/cm)	0.060 - 0.150	ASTM D 1238, Procedure B
Density (g/cu m)	0.88 - 0.92	ASTM D 792

(b) The select fill, defined as the material placed in the reinforced volume behind the wall, shall be according to Sections 1003 and 1004 of the Standard Specifications and the following:

(1) Select Fill Gradation. Either a coarse aggregate or a fine aggregate may be used. For coarse aggregate, gradations CA 6 thru CA 16 may be used. If an epoxy coated or geosynthetic reinforcing is used, the coarse aggregate gradations shall be limited to CA 12 thru CA 16. For fine aggregate, gradations FA 1, FA 2, or FA 20 may be used.

Other aggregate gradations may be used provided the maximum aggregate size is 1 1/2 in. (38 mm), the maximum material passing the #40 (425 µm) sieve is 60 percent, and the maximum material passing the #200 (75 µm) sieve is 15 percent.

(2) Select Fill Quality. The coarse or fine aggregate shall be Class B quality or better, except that a maximum of 15 percent of the material may be finer than the #200 (75 µm) sieve.

(3) Select Fill Internal Friction Angle. The effective internal friction angle for the coarse or fine aggregate shall be a minimum 34 degrees according to AASHTO T 236 on samples compacted to 95 percent density according to Illinois Modified AASHTO T 99. The AASHTO T 296 test with pore pressure measurement may be used in lieu of AASHTO T 236. If the vendor's design uses a friction angle higher than 34 degrees, as indicated on the approved shop drawings, this higher value shall be taken as the minimum required.

(4) Select Fill and Steel Reinforcing. When steel reinforcing is used, the select fill shall meet the following requirements.

- a. The pH shall be 5.0 to 10.0 according to AASHTO T 289.
- b. The resistivity shall be greater than 3000 ohm centimeters according to AASHTO T 288.
- c. The chlorides shall be less than 100 parts per million according to AASHTO T 291 or ASTM D 4327. For either test, the sample shall be prepared according to AASHTO T 291.

- d. The sulfates shall be less than 200 parts per million according to AASHTO T 290 or ASTM D 4327. For either test, the sample shall be prepared according to AASHTO T 290.
 - e. The organic content shall be a maximum 1.0 percent according to AASHTO T 267.
- (5) Select Fill and Geosynthetic Reinforcing. When geosynthetic reinforcing is used, the select fill pH shall be 4.5 to 9.0 according to AASHTO T 289.
- (6) Test Frequency. Prior to start of construction, the Contractor shall provide internal friction angle, pH, to show the select fill material meets the specification requirements. In addition, resistivity, chlorides, sulfates, and organic content test results will be required if steel reinforcing is used. All test results shall not be older than 12 months. In addition, a sample of select fill material will be obtained for testing and approval by the Department. Thereafter, the minimum frequency of sampling and testing at the jobsite will be one per 20,000 cubic yards (15,500 cubic meters) of select fill material.
- (c) The embankment material behind the select fill shall be according to Section 202 and/or Section 204. An embankment unit weight of 120 lbs/cubic foot (1921 kg/cubic meter) and an effective friction angle of 30 degrees shall be used in the wall system design, unless otherwise indicated on the plans.
- (d) The geosynthetic filter material used across the panel joints shall be either a non-woven needle punch polyester or polypropylene or a woven monofilament polypropylene with a minimum width of 12 in. (300 mm) and a minimum non-sewn lap of 6 in. (150 mm) where necessary.
- (e) The bearing pads shall be rubber, neoprene, polyvinyl chloride, or polyethylene of the type and grade as recommended by the wall supplier.
- (f) All precast panels shall be manufactured with Class PC concrete according to Section 504, Article 1042.02, Article 1042.03, and the following requirements:
- (1) The minimum panel thickness shall be 5 1/2 in. (140 mm).
 - (2) The minimum reinforcement bar cover shall be 1 1/2 in. (38 mm).
 - (3) The panels shall have a ship lap or tongue and groove system of overlapping joints between panels designed to conceal joints and bearing pads.
 - (4) The panel reinforcement shall be according to Article 1006.10 (a)(2).
 - (5) All dimensions shall be within 3/16 in. (5 mm).
 - (6) Angular distortion with regard to the height of the panel shall not exceed 0.2 inches in 5 ft (5 mm in 1.5 m).

- (7) Surface defects on formed surfaces measured on a length of 5 ft. (1.5 m) shall not be more than 0.1 in. (2.5 mm).
- (8) The panel embed/connection devices shall be cast into the facing panels with a tolerance not to exceed 1 in. (25 mm) from the locations specified on the approved shop drawings.

Unless specified otherwise, concrete surfaces exposed to view in the completed wall shall be finished according to Article 503.15(a). The back face of the panel shall be roughly screeded to eliminate open pockets of aggregate and surface distortions in excess of 1/4 in. (6 mm).

Design Criteria. The design shall be according to the appropriate AASHTO Design Specifications noted on the plans for Mechanically Stabilized Earth Walls except as modified herein. The wall supplier shall be responsible for all internal stability aspects of the wall design and shall supply the Department with computations for each designed wall section. The analyses of settlement, bearing capacity and overall slope stability will be the responsibility of the Department.

External loads, such as those applied through structure foundations, from traffic or railroads, slope surcharge etc., shall be accounted for in the internal stability design. The presence of all appurtenances behind, in front of, mounted upon, or passing through the wall volume such as drainage structures, utilities, structure foundation elements or other items shall be accounted for in the internal stability design of the wall.

The design of the soil reinforcing system shall be according to the applicable AASHTO or AASHTO LRFD Design Specifications for "Inextensible" steel or "Extensible" geosynthetic reinforcement criteria. The reduced section of the soil reinforcing system shall be sized to allowable stress levels at the end of a 75 year design life.

Steel soil reinforcing systems shall be protected by either galvanizing or epoxy coating. The design life for epoxy shall be 16 years. The corrosion protection for the balance of the 75 year total design life shall be provided using a sacrificial steel thickness computed for all exposed surfaces according to the applicable AASHTO or AASHTO LRFD Design Specifications.

Geosynthetic soil reinforcing systems shall be designed to account for the strength reduction due to long-term creep, chemical and biological degradation, as well as installation damage.

To prevent out of plane panel rotations, the soil reinforcement shall be connected to the standard panels in at least two different elevations, vertically spaced no more than 30 in. (760 mm) apart.

The panel embed/soil reinforcement connection capacity shall be determined according to the applicable AASHTO or AASHTO LRFD Design Specifications.

The factor of safety for pullout resistance in the select fill shall not be less than 1.5, based on the pullout resistance at 1/2 in. (13 mm) deformation. Typical design procedures and details, once accepted by the Department, shall be followed. All wall system changes shall be submitted in advance to the Department for approval.

For aesthetic considerations and differential settlement concerns, the panels shall be erected in such a pattern that the horizontal panel joint line is discontinuous at every other panel. This shall be accomplished by alternating standard height and half height panel placement along the leveling pad. Panels above the lowest level shall be standard size except as required to satisfy the top of exposed panel line shown on the contract plans.

At locations where the plans specify a change of panel alignment creating an included angle of 150 degrees or less, precast corner joint elements will be required. This element shall separate the adjacent panels by creating a vertical joint secured by means of separate soil reinforcement.

Isolation or slip joints, which are similar to corner joints in design and function, may be required to assist in differential settlements at locations indicated on the plans or as recommended by the wall supplier. Wall panels with areas greater than 30 sq. ft. (2.8 sq. m) may require additional slip joints to account for differential settlements. The maximum standard panel area shall not exceed 60 sq. ft. (5.6 sq. m).

Construction. The Contractor shall obtain technical assistance from the supplier during wall erection to demonstrate proper construction procedures and shall include any costs related to this technical assistance in the unit price bid for this item.

The foundation soils supporting the structure shall be graded for a width equal to or exceeding the length of the soil reinforcement. Prior to wall construction, the foundation shall be compacted with a smooth wheel vibratory roller. Any foundation soils found to be unsuitable shall be removed and replaced, as directed by the Engineer, and shall be paid for separately according to Section 202.

When structure excavation is necessary, it shall be made and paid for according to Section 502 except that the horizontal limits for structure excavation shall be from the rear limits of the soil reinforcement to a vertical plane 2 ft. (600 mm) from the finished face of the wall. The depth shall be from the top of the original ground surface to the top of the leveling pad. The additional excavation necessary to place the concrete leveling pad will not be measured for payment but shall be included in this work.

The concrete leveling pads shall have a minimum thickness of 6 in. (150 mm) and shall be placed according to Section 503.

As select fill material is placed behind a panel, the panel shall be maintained in its proper inclined position according to the supplier specifications and as approved by the Engineer. Vertical tolerances and horizontal alignment tolerances shall not exceed 3/4 in. (19 mm) when measured along a 10 ft. (3 m) straight edge. The maximum allowable offset in any panel joint shall be 3/4 in. (19 mm). The overall vertical tolerance of the wall, (plumbness from top to

bottom) shall not exceed 1/2 in. per 10 ft. (13 mm per 3 m) of wall height. The precast face panels shall be erected to insure that they are located within 1 in. (25 mm) from the contract plan offset at any location to insure proper wall location at the top of the wall. Failure to meet this tolerance may cause the Engineer to require the Contractor to disassemble and re-erect the affected portions of the wall. A 3/4 in. (19 mm) joint separation shall be provided between all adjacent face panels to prevent direct concrete to concrete contact. This gap shall be maintained by the use of bearing pads and/or alignment pins.

The back of all panel joints shall be covered by a geotextile filter material attached to the panels with a suitable adhesive. No adhesive will be allowed directly over the joints.

The select fill and embankment placement shall closely follow the erection of each lift of panels. At each soil reinforcement level, the fill material should be roughly leveled and compacted before placing and attaching the soil reinforcing system. The soil reinforcement and the maximum lift thickness shall be placed according to the supplier's recommended procedures except, the lifts for select fill shall not exceed 10 in. (255 mm) loose measurement or as approved by the Engineer. Embankment shall be constructed according to Section 205.

At the end of each day's operations, the Contractor shall shape the last level of select fill to permit runoff of rainwater away from the wall face. Select fill shall be compacted according to the project specifications for embankment except the minimum required compaction shall be 95 percent of maximum density as determined by AASHTO T 99. Select fill compaction shall be accomplished without disturbance or distortion of soil reinforcing system and panels. Compaction in a strip 3 ft. (1 m) wide adjacent to the backside of the panels shall be achieved using a minimum of 3 passes of a light weight mechanical tamper, roller or vibratory system. The Engineer will perform one density test per 5000 cu yd (3800 cu m) and not less than one test per 2 ft (0.6 m) of lift.

Method of Measurement. Mechanically Stabilized Earth Retaining Wall will be measured for payment in square feet (square meters). The MSE retaining wall will be measured from the top of exposed panel line to the theoretical top of leveling pad line for the length of the wall as shown on the contract plans.

Basis of Payment. This work, including placement of the select fill within the soil reinforced wall volume shown on the approved shop drawings, precast face panels, soil reinforcing system, concrete leveling pad and accessories will be paid for at the contract unit price per square foot (square meter) for MECHANICALLY STABILIZED EARTH RETAINING WALL.

Concrete coping when specified on the contract plans will be included for payment in this work. Other concrete appurtenances such as anchorage slabs, parapets, abutment caps, etc. will not be included in this work, but will be paid for as specified elsewhere in this contract, unless otherwise noted on the plans.

Excavation necessary to place the select fill for the MSE wall shall be paid for as STRUCTURE EXCAVATION and/or ROCK EXCAVATION FOR STRUCTURES as applicable, according to Section 502.

Embankment placed outside of the select fill volume will be measured and paid for according to Sections 202 and/or 204 as applicable.

DRILLED SOLDIER PILE RETAINING WALL

Effective: September 20, 2001

Revised: October 15, 2011

Description. This work shall consist of providing all labor, materials, and equipment necessary to fabricate and furnish the soldier piles, create and maintain the shaft excavations, set and brace the soldier piles into position and encase the soldier piles in concrete to the specified elevation. Also included in this work is the backfilling of the remainder of the shaft excavation with Controlled Low-Strength Material (CLSM), and the furnishing and installation of lagging. All work shall be according to the details shown on the plans and as directed by the Engineer.

The remainder of the retaining wall components as shown on the plans, such as concrete facing, shear studs, reinforcement bars, tie backs, hand rails, and various drainage items etc., are not included in this Special Provision but are paid for as specified elsewhere in this Contract.

Materials. The materials used for the soldier piles and lagging shall satisfy the following requirements:

- (a) The structural steel components for the soldier piles shall conform to the requirements of AASHTO M270, Grade 36 (M270M Grade 250), unless otherwise designated on the plans.
- (b) The soldier pile encasement concrete shall be Class DS according to Section 516.02.
- (c) The Controlled Low-Strength Material (CLSM), used for backfilling shaft excavations above the soldier pile encasement concrete and for backfilling secant lagging excavations, to the existing ground surface, shall be according to Article 1019.
- (d) Temporary casing shall be produced by electric seam, butt, or spiral welding to produce a smooth wall surface, fabricated from steel satisfying ASTM A252 Grade 2. The minimum wall thickness shall be as required to resist the anticipated installation and dewatering stresses, as determined by the Contractor, but in no case less than 1/4 in. (6 mm).
- (e) Drilling slurry shall consist of a polymer or mineral base material. Mineral slurry shall have both a mineral grain size that will remain in suspension with sufficient viscosity and gel characteristics to transport excavated material to a suitable screening system. The percentage and specific gravity of the material used to make the suspension shall be sufficient to maintain the stability of the excavation and to allow proper concrete placement. For polymer slurry, the calcium hardness of the mixing water shall not exceed 100 mg/L.
- (f) Timber Lagging. The minimum tabulated unit stress in bending (F_b), used for the design of the timber lagging, shall be 1000 psi (6.9 MPa) unless otherwise specified on the plans. When treated timber lagging is specified on the plans, the method of treatment shall be according to Article 1007.12. All timber shall meet the inspection requirements of Article 1007.01.

- (g) **Precast Concrete Lagging.** Precast concrete lagging shall be according to Section 504 of the Standard Specifications, except as modified herein. Unless specified otherwise, precast concrete lagging surfaces exposed to view in the completed wall shall be finished according to Article 503.15. When specified on the plans, the exposed surface shall be finished with a concrete form liner approved by the Engineer. The back face of the panel shall be roughly screeded to eliminate open pockets of aggregate and surface distortions in excess of 1/4 in. Reinforcement for precast concrete lagging shall be epoxy coated. Lifting inserts shall have a total minimum design capacity based on yield strength of 4 times the dead load calculated for the width of lagging used. Fabric bearing pads, when specified on the plans, shall meet the requirements of Section 1082. Threaded inserts, or other accessories, cast into the precast concrete lagging shall be galvanized according to AASHTO M111 or M232 as applicable.

Equipment. The drilling equipment shall have adequate capacity, including power, torque and down thrust, to create a shaft excavation of the maximum diameter specified to a depth of 20 percent beyond the depths shown on the plans. Concrete equipment shall be according to Article 1020.03.

Construction Requirements. The shaft excavation for each soldier pile shall extend to the tip elevation indicated on the plans for soldier piles terminating in soil or to the required embedment in rock when rock is indicated on the contract plans. The Contractor shall satisfy the following requirements:

- (a) **Drilling Methods.** The soldier pile installation shall be according to 516.06(a),(b), or(c).

No shaft excavation shall be made adjacent to a soldier pile with encasement concrete that has a compressive strength less than 1500 psi (10.35 MPa), nor adjacent to secant lagging until the CLSM has reach sufficient strength to maintain its position and shape unless otherwise approved by the Engineer. Materials removed or generated from the shaft excavations shall be disposed of by the Contractor according to Article 202.03. Excavation by blasting will not be permitted.

- (b) **Drilling Slurry.** During construction, the level of the slurry shall be maintained at a height sufficient to prevent caving of the hole. In the event of a sudden or significant loss of slurry to the hole, the construction of that shaft shall be stopped and the shaft excavation backfilled or supported by temporary casing until a method to stop slurry loss, or an alternate construction procedure, has been developed and approved by the Engineer.

- (c) **Obstructions.** Obstructions shall be defined as any object (such as but not limited to, boulders, logs, old foundations, etc.) that cannot be removed with normal earth drilling procedures, but requires special augers, tooling, core barrels or rock augers to remove the obstruction. When obstructions are encountered, the Contractor shall notify the Engineer and upon concurrence of the Engineer, the Contractor shall begin working to core, break up, push aside, or remove the obstruction. Lost tools or equipment in the excavation, as a result of the Contractor's operation, shall not be defined as obstructions and shall be removed at the Contractor's expense.

- (d) Top of Rock. The top of rock will be considered as the point where rock, defined as bedded deposits and conglomerate deposits exhibiting the physical characteristics and difficulty of rock removal as determined by the Engineer, is encountered which cannot be drilled with earth augers and/or underreaming tools configured to be effective in the soils indicated in the contract documents, and requires the use of special rock augers, core barrels, air tools, blasting, or other methods of hand excavation.
- (e) Design Modifications. If the top of rock elevation encountered is below that estimated on the plans, such that the soldier pile length above rock is increased by more than 10 percent, the Engineer shall be contacted to determine if any soldier pile design changes are required. In addition, if the type of soil or rock encountered is not similar to that shown in the subsurface exploration data, the Engineer shall be contacted to determine if revisions are necessary.
- (f) Soldier Pile Fabrication and Placement. The soldier pile is defined as the structural steel section(s) shown on the plans as well as any connecting plates used to join multiple sections. The types of soldier piles shall be defined as HP, W Sections, or Built-Up Sections. Cleaning and painting of all steel components, when specified, shall be as shown on the plans and accomplished according to the special provision for "Cleaning and Painting New Metal Structures". This work will not be paid for separately, but shall be considered included in the cost of Furnishing Soldier Piles of the type specified.

The soldier pile shall be shop fabricated such that no field welding is required. The Contractor shall attach suitable bracing or support to maintain the position of the soldier pile within the shaft excavation such that the final location will satisfy the Construction Tolerances portion of this Special Provision. The bracing or supports shall remain in place until the concrete for encasement has reached a minimum compressive strength of 1500 psi (10.35 MPa).

When embedment in rock is indicated on the plans, modification to the length of a soldier pile may be required to satisfy the required embedment. The modification shall be made to the top of the soldier pile unless otherwise approved by the Engineer. When the top of rock encountered is above the estimated elevation indicated on the plans, the soldier piles shall be cut to the required length. If the top of rock encountered is below that estimated on the plans, the Contractor shall either furnish longer soldier piles or splice on additional length of soldier pile per Article 512.05(a) to satisfy the required embedment in rock. In order to avoid delays, the Contractor may have additional soldier pile sections fabricated as necessary to make the required adjustments. Additional soldier pile quantities, above those shown on the plans, shall not be furnished without prior written approval by the Engineer.

- (g) Concrete Placement. Concrete work shall be performed according to Article 516.12 and as specified herein.

The soldier pile encasement concrete pour shall be made in a continuous manner from the bottom of the shaft excavation to the elevation indicated on the plans. Concrete shall be placed as soon as possible after the excavation is completed and the soldier pile is secured

in the proper position. Uneven levels of concrete placed in front, behind, and on the sides of the soldier pile shall be minimized to avoid soldier pile movement, and to ensure complete encasement.

Following the soldier pile encasement concrete pour, the remaining portion of the shaft excavation shall be backfilled with CLSM according to Section 593. CLSM Secant lagging placement shall be placed as soon as practical after the shaft excavation is cleared.

(h) Construction Tolerances. The soldier piles shall be drilled and located within the excavation to satisfy the following tolerances:

(1) The center of the soldier pile shall be within 1 1/2 in. (38 mm) of plan station and 1/2 in. (13 mm) offset at the top of the shaft.

(2) The out of vertical plumbness of the soldier pile shall not exceed 0.83 percent.

(3) The top of the soldier pile shall be within ± 1 in. (± 25 mm) of the plan elevation.

(i) Timber Lagging. Timber lagging, when required by the plans, installed below the original ground surface, shall be placed from the top down as the excavation proceeds. Lagging shown above grade shall be installed and backfilled against prior to installing any permanent facing to minimize post construction deflections. Over-excavation required to place the timber lagging behind the flanges of the soldier piles shall be the minimum necessary to install the lagging. Any voids produced behind the lagging shall be filled with porous granular embankment at the Contractor's expense. When the plans require the Contractor to design the timber lagging, the design shall be based on established practices published in FHWA or AASHTO documents considering lateral earth pressure, construction loading, traffic surcharges and the lagging span length(s). The nominal thickness of the lagging selected shall not be less than 3 in. (75 mm) and shall satisfy the minimum tabulated unit stress in bending (F_b) stated elsewhere in this Special Provision. The Contractor shall be responsible for the successful performance of the lagging system until the concrete facing is installed. When the nominal timber lagging thickness(s) and allowable stress are specified on the plans, the timber shall be according to Article 1007.03.

(j) Precast Concrete Lagging. Precast concrete lagging, when required by the plans, installed below the original ground surface, shall be placed from the top down as the excavation proceeds. Lagging shown above grade shall be installed and backfilled against prior to installing any permanent facing to minimize post construction deflections. Over-excavation required to place the precast lagging behind the flanges of the soldier piles shall be the minimum necessary to install the lagging. Any voids produced behind the lagging shall be filled with porous granular embankment at the Contractor's expense. When the plans require the Contractor to design the precast concrete lagging, the design shall be based on established practices published in FHWA or AASHTO documents considering lateral earth pressure, construction loading, traffic surcharges and the lagging span length(s). The Contractor shall be responsible for the successful performance of the lagging system until the permanent concrete facing, when specified on the plans, is installed.

The precast concrete lagging shall be reinforced with a minimum of 0.31 square inches/foot (655 Sq. mm/meter) of horizontal and vertical reinforcement per unit width of lagging with a minimum thickness of 3 in. (75 mm).

When precast concrete lagging is exposed to view in the completed wall, shop drawings for the lagging shall be submitted according to Article 1042.03(b) and Article 105.04 of the Standard Specifications. The supplier selected by the Contractor shall submit complete design calculations and shop drawings, prepared and sealed by an Illinois Licensed Structural Engineer, for approval by the Engineer.

- (k) Structure Excavation. When structure excavation is necessary to place a concrete facing, it shall be made and paid for according to Section 502 except that the horizontal limits for structure excavation shall be from the face of the soldier pile to a vertical plane 2 ft. (600 mm) from the finished face of the wall. The depth shall be from the top of the original ground surface to the bottom of the concrete facing. The additional excavation necessary to place the lagging whether through soil or CLSM shall be included in this work.
- (l) Geocomposite Wall Drain. When required by the plans, the geocomposite wall drain shall be installed and paid for according to Section 591 except that, in the case where a concrete facing is specified on the plans, the wall drain shall be installed on the concrete facing side of the lagging with the pervious (fabric) side of the drain installed to face the lagging. When a concrete facing is not specified on the plans, the pervious (fabric) side of the drain shall be installed to face the soil. In this case, the drain shall be installed in stages as the lagging is installed. The wall drain shall be placed in sections and spliced, or kept on a continuous roll, so that as each piece of lagging is placed, the drain can be properly located as the excavation proceeds.

Method of Measurement. The furnishing of soldier piles will be measured for payment in feet (meters) along the centerline of the soldier pile for each of the types specified. The length shall be determined as the difference between the plan top of soldier pile and the final as built shaft excavation bottom.

The drilling and setting of soldier piles in soil and rock, will be measured for payment and the volumes computed in cubic feet (cubic meters) for the shaft excavation required to set the soldier piles according to the plans and specifications, and accepted by the Engineer. These volumes shall be the theoretical volumes computed using the diameter(s) of the shaft(s) shown in the plans and the depth of the excavation in soil and/or rock as appropriate. The depth in soil will be defined as the difference in elevation between the ground surface at the time of concrete placement and the bottom of the shaft excavation or the top of rock (when present), whichever is encountered first. The depth in rock will be defined as the difference in elevation between the measured top of rock and the bottom of the shaft excavation.

Drilling and placing CLSM secant lagging shall be measured for payment in cubic feet (cubic meters) of the shaft excavation required to install the secant lagging as shown in the plans. This volume shall be the theoretical volume computed using the diameter(s) shown on the plans and the difference in elevation between the as built shaft excavation bottom and the ground surface at the time of the CLSM placement.

Timber and precast concrete lagging shall be measured for payment in square feet (square meters) of lagging installed to the limits as shown on the plans. The quantity shall be calculated using the minimum lagging length required on the plans multiplied by the as-installed height of lagging, for each bay of lagging spanning between the soldier piles.

Basis of Payment. The furnishing of soldier piles will be paid for at the contract unit price per foot (meter) for FURNISHING SOLDIER PILES, of the type specified, for the total number of feet (meters) furnished to the job site. The cost of any field splices required due to changes in top of rock elevation shall be paid for according to Article 109.04.

The drilling and setting of soldier piles will be paid for at the contract unit price per cubic foot (cubic meter) for DRILLING AND SETTING SOLDIER PILES (IN SOIL) and DRILLING AND SETTING SOLDIER PILES (IN ROCK). The required shaft excavation, soldier pile encasement concrete and any CLSM backfill required around each soldier pile will not be paid for separately but shall be included in this item.

Timber lagging will be paid for at the contract unit price per square foot (square meter) for UNTREATED TIMBER LAGGING, or TREATED TIMBER LAGGING as detailed on the plans. Precast concrete lagging will be paid for at the contract unit price per square foot (square meter) for PRECAST CONCRETE LAGGING as detailed on the plans.

The secant lagging will be paid for at the contract unit price per cubic foot (cubic meter) for SECANT LAGGING. The required shaft excavation and CLSM backfill required to fill that excavation shall be included in this item.

Obstruction mitigation shall be paid for according to Article 109.04.

No additional compensation, other than noted above, will be allowed for removing and disposing of excavated materials, for furnishing and placing concrete, CLSM, bracing, lining, temporary casings placed and removed or left in place, or for any excavation made or concrete placed outside of the plan diameter(s) of the shaft(s) specified.

PIPE UNDERDRAINS FOR STRUCTURES

Effective: May 17, 2000

Revised: January 22, 2010

Description. This work shall consist of furnishing and installing a pipe underdrain system as shown on the plans, as specified herein, and as directed by the Engineer.

Materials. Materials shall meet the requirements as set forth below:

The perforated pipe underdrain shall be according to Article 601.02 of the Standard Specifications. Outlet pipes or pipes connecting to a separate storm sewer system shall not be perforated.

The drainage aggregate shall be a combination of one or more of the following gradations, FA1, FA2, CA5, CA7, CA8, CA11, or CA13 thru 16, according to Sections 1003 and 1004 of the Standard Specifications.

The fabric surrounding the drainage aggregate shall be Geotechnical Fabric for French Drains according to Article 1080.05 of the Standard Specifications.

Construction Requirements. All work shall be according to the applicable requirements of Section 601 of the Standard Specifications except as modified below.

The pipe underdrains shall consist of a perforated pipe drain situated at the bottom of an area of drainage aggregate wrapped completely in geotechnical fabric and shall be installed to the lines and gradients as shown on the plans.

Method of Measurement. Pipe Underdrains for Structures shall be measured for payment in feet (meters), in place. Measurement shall be along the centerline of the pipe underdrains. All connectors, outlet pipes, elbows, and all other miscellaneous items shall be included in the measurement. Concrete headwalls shall be included in the cost of Pipe Underdrains for Structures, but shall not be included in the measurement for payment.

Basis of Payment. This work will be paid for at the contract unit price per foot (meter) for PIPE UNDERDRAINS FOR STRUCTURES of the diameter specified. Furnishing and installation of the drainage aggregate, geotechnical fabric, forming holes in structural elements and any excavation required, will not be paid for separately, but shall be included in the cost of the pipe underdrains for structures.

| **POROUS GRANULAR EMBANKMENT, SPECIAL**

Effective: September 28, 2005

| Revised: November 14, 2008

Description. This work shall consist of furnishing and placing porous granular embankment special material as detailed on the plans, according to Section 207 except as modified herein.

Materials. The gradation of the porous granular material may be any of the following CA 8 thru CA 18, FA 1 thru FA 4, FA 7 thru FA 9, and FA 20 according to Articles 1003 and 1004.

| Construction. The porous granular embankment special shall be installed according to Section 207, except that it shall be uncompacted.

| Basis of Payment. This work will be paid for at the contract unit price per Cubic Yard (Cubic Meter) for POROUS GRANULAR EMBANKMENT, SPECIAL.

ERECTION OF CURVED STEEL STRUCTURES

Effective: June 1, 2007

Description: In addition to the requirements of Article 505.08(e), the following shall apply.

The Contractor or sub-Contractor performing the erection of the structural steel is herein referred to as the Erection Contractor.

Erection Plan: The Erection Contractor shall retain the services of an Illinois Licensed Structural Engineer, experienced in the analysis and preparation of curved steel girder erection plans, for the completion of a project-specific erection plan. The structural engineer, herein referred to as the Erection Engineer, shall sign and seal the erection plan, drawings, and calculations for the proposed erection of the structural steel.

The erection plan shall be complete in detail for all phases, stages, and conditions anticipated during erection. The erection plan shall include structural calculations and supporting documentation necessary to completely describe and document the means, methods, temporary support positions, and loads necessary to safely erect the structural steel in conformance with the contract documents and as outlined herein. The erection plans shall address and account for all items pertinent to the steel erection including such items as sequencing, falsework, temporary shoring and/or bracing, girder stability, crane positioning and movement, means of access, pick points, girder shape, permissible deformations and roll, interim/final plumbness, cross frame/diaphragm placement and connections, bolting and anchor bolt installation sequences and procedures, and blocking and anchoring of bearings. The Erection Contractor shall be responsible for the stability of the partially erected steel structure during all phases of the steel erection.

The erection plans and procedures shall be submitted to the Engineer for review and acceptance prior to starting the work. Review, acceptance and/or comments by the Department shall not be construed to guarantee the safety or final acceptability of the work or compliance with all applicable specifications, codes, or contract requirements, and shall neither relieve the Contractor of the responsibility and liability to comply with these requirements, nor create liability for the Department. Significant changes to the erection plan in the field must be approved by the Erection Engineer and accepted by the Engineer for the Department.

Basis of Payment: This work shall not be paid for separately but shall be included in the applicable pay items according to Article 505.13 of the Standard Specifications.

COFFERDAMS

Effective: October 15, 2011

Replace Article 502.06 with the following.

502.06 Cofferdams. A Cofferdam shall be defined as a temporary structure, consisting of engineered components, designed to isolate the work area from water to enable construction under dry conditions based on either the Estimated Water Surface Elevation (EWSE) or Cofferdam Design Water Elevation (CDWE) shown on the contract plans as specified below. When cofferdams are not specified in the contract documents and conditions are encountered where the excavation for the structure cannot be kept free of water for prosecuting the work by pumping and/or diverting water, the Contractor, with the written permission of the Engineer, will be permitted to construct a cofferdam.

The Contractor shall submit a cofferdam plan for each cofferdam to the Engineer for approval prior to the start of construction. Cofferdams shall not be installed or removed without the Engineer's approval. Work shall not be performed in flowing water except for the installation and removal of the cofferdam. The cofferdam plan shall address the following:

- (a) Cofferdam (Type 1). The Contractor shall submit a cofferdam plan which addresses the proposed methods of construction and removal; the construction sequence including staging; dewatering methods; erosion and sediment control measures; disposal of excavated material; effluent water control measures; backfilling; and the best management practices to prevent reintroduction of excavated material into the aquatic environment. The design and method of construction shall provide, within the measurement limits specified in Article 502.12, necessary clearance for forms, inspection of exterior of the forms, pumping, and protection of fresh concrete from water. For Type 1 cofferdams, it is anticipated the design will be based on the EWSE shown on the contract plans. The Contractor shall assume all liability, financial or otherwise for a Type 1 cofferdam designed for an elevation lower than the EWSE.
- (b) Cofferdam (Type 2). In addition to the requirements of Article 502.06(a), the Contractor's submittal shall include detailed drawings and design calculations, prepared and sealed by an Illinois Licensed Structural Engineer. For Type 2 cofferdams it is anticipated the design will be based on the CDWE shown on the contract plans. The Contractor shall assume all liability, financial or otherwise for a Type 2 cofferdam designed for an elevation lower than the CDWE.
- (c) Seal Coat. The seal coat concrete, when shown on the plans, is based on design assumptions in order to establish an estimated quantity. When seal coat is indeed utilized, it shall be considered an integral part of the overall cofferdam system and, therefore, its design shall be included in the overall cofferdam design submittal. If a seal coat was not specified but determined to be necessary, it shall be added to the contract by written permission of the Engineer. The seal coat concrete shall be constructed according to Article

503.14. After the excavation within the cofferdam has been completed and the piles have been driven (if applicable), and prior to placing the seal coat, the elevation of the bottom of the proposed seal coat shall be verified by soundings. The equipment and methods used to conduct the soundings shall meet the approval of the Engineer. Any material within the cofferdam above the approved bottom of the seal coat elevation shall be removed.

No component of the cofferdam shall extend into the substructure concrete or remain in place without written permission of the Engineer. Removal shall be according to the previously approved procedure. Unless otherwise approved in writing by the Engineer, all components of the cofferdam shall be removed.

Revise the first paragraph of 502.12(b) to read as follows.

(b) Measured Quantities. Structure excavation, when specified, will be measured for payment in its original position and the volume computed in cubic yards (cubic meters). Horizontal dimensions will not extend beyond vertical planes 2 ft (600 mm) outside of the edges of footings of bridges, walls, and corrugated steel plate arches. The vertical dimension for structure excavation will be the average depth from the surface of the material to be excavated to the bottom of the footing as shown on the plans or ordered in writing by the Engineer. The volume of any unstable and/or unsuitable material removed within the structure excavation will be measured for payment in cubic yards (cubic meters).

Revise the last paragraph of 502.12(b) to read as follows.

Cofferdam excavation will be measured for payment in cubic yards (cubic meters) in its original position within the cofferdam. Unless otherwise shown on the plans, the horizontal dimensions used in computing the volume will not extend beyond vertical planes 2 ft (600 mm) outside of the edges of the substructure footings or 4 ft (1.2 m) outside of the faces of the substructure stem wall, whichever is greater. The vertical dimensions will be the average depth from the surface of the material to be excavated to the elevation shown on the plans for bottom of the footing, stem wall, or seal coat, or as otherwise determined by the Engineer as the bottom of the excavation.

Revise the first sentence of the sixth paragraph of 502.13 to read as follows.

Cofferdams, when specified, will be paid for at the contract unit price per each for COFFERDAM (TYPE 1) or COFFERDAM (TYPE 2), at the locations specified.

**REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS**

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ATTACHMENTS

- A. Employment Preference for Appalachian Contracts
(included in Appalachian contracts only)

I. GENERAL

1. These contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

2. Except as otherwise provided for in each section, the contractor shall insert in each subcontract all of the stipulations contained in these Required Contract Provisions, and further require their inclusion in any lower tier subcontract or purchase order that may in turn be made. The Required Contract Provisions shall not be incorporated by reference in any case. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with these Required Contract Provisions.

3. A breach of any of the stipulations contained in these Required Contract Provisions shall be sufficient grounds for termination of the contract.

4. A breach of the following clauses of the Required Contract Provisions may also be grounds for debarment as provided in 29 CFR 5.12:

- Section I, paragraph 2;
- Section IV, paragraphs 1, 2, 3, 4 and 7;
- Section V, paragraphs 1 and 2a through 2g.

5. Disputes arising out of the labor standards provisions of Section IV (except paragraph 5) and Section V of these Required Contract Provisions shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the U.S. Department of Labor (DOL) as set forth in 29 CFR 5, 6 and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the DOL, or the contractor's employees or their representatives.

6. Selection of Labor: During the performance of this contract, the contractor shall not:

- a. Discriminate against labor from any other State, possession, or territory of the United States (except for employment preference for Appalachian contracts, when applicable, as specified in Attachment A), or
- b. Employ convict labor for any purpose within the limits of the project unless it is labor performed by convicts who are on parole, supervised release, or probation.

II. NONDISCRIMINATION

(Applicable to all Federal-aid construction contracts and to all related subcontracts of \$10,000 or more.)

1. Equal Employment Opportunity: Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630 and 41 CFR 60 (and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The Equal Opportunity Construction Contract Specifications set forth under 41 CFR 60-4.3 and the provisions of the American Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

- a. The contractor will work with the State highway agency (SHA) and the Federal Government in carrying out EEO obligations and in their review of his/her activities under the contract.
- b. The contractor will accept as his operating policy the following statement: "It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, preapprenticeship, and/or on-the-job-training."

2. EEO Officer: The contractor will designate and make known to the SHA contracting officers an EEO Officer who will have the responsibility for an must be capable of effectively administering and promoting an active contractor program of EEO and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

- a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.
- b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.
- c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minority group employees.
- d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.
- e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minority groups in the area from which the project work force would normally be derived.

- a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employees referral sources likely to yield qualified minority group applicants. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish which such identified sources procedures whereby minority group applicants may be referred

to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, he is expected to observe the provisions of that agreement to the extent that the system permits the contractor's compliance with EEO contract provisions. (The DOL has held that where implementation of such agreements have the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Executive Order 11246, as amended.)

c. The contractor will encourage his present employees to refer minority group applicants for employment. Information and procedures with regard to referring minority group applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with his obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of his avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minority group and women employees, and applicants for employment.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision.

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of minority group and women employees and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use his/her best efforts to obtain the cooperation of such unions to increase opportunities for minority groups and women within the unions, and to effect referrals by such unions of minority and female employees. Actions by the contractor either directly or through a contractor's association acting as agent will include the procedures set forth below:

a. The contractor will use best efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minority group members and women

for membership in the unions and increasing the skills of minority group employees and women so that they may qualify for higher paying employment.

b. The contractor will use best efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the SHA and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of minority and women referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or quailifiable minority group persons and women. (The DOL has held that it shall be no excuse that the union with which the contractor has a collective bargaining agreement providing for exclusive referral failed to refer minority employees.) In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the SHA.

8. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment.

a. The contractor shall notify all potential subcontractors and suppliers of his/her EEO obligations under this contract.

b. Disadvantaged business enterprises (DBE), as defined in 49 CFR 23, shall have equal opportunity to compete for and perform subcontracts which the contractor enters into pursuant to this contract. The contractor will use his best efforts to solicit bids from and to utilize DBE subcontractors or subcontractors with meaningful minority group and female representation among their employees. Contractors shall obtain lists of DBE construction firms from SHA personnel.

c. The contractor will use his best efforts to ensure subcontractor compliance with their EEO obligations.

9. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following completion of the contract work and shall be available at reasonable times and places for inspection by authorized representatives of the SHA and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women;

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minority and female employees; and

(4) The progress and efforts being made in securing the services of DBE subcontractors or subcontractors with meaningful minority and female representation among their employees.

b. The contractors will submit an annual report to the SHA each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the

contract work. This information is to be reported on Form FHWA-1391. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data.

III. NONSEGREGATED FACILITIES

(Applicable to all Federal-aid construction contracts and to all related subcontracts of \$10,000 or more.)

a. By submission of this bid, the execution of this contract or subcontract, or the consummation of this material supply agreement or purchase order, as appropriate, the bidder, Federal-aid construction contractor, subcontractor, material supplier, or vendor, as appropriate, certifies that the firm does not maintain or provide for its employees any segregated facilities at any of its establishments, and that the firm does not permit its employees to perform their services at any location, under its control, where segregated facilities are maintained. The firm agrees that a breach of this certification is a violation of the EEO provisions of this contract. The firm further certifies that no employee will be denied access to adequate facilities on the basis of sex or disability.

b. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms and washrooms, restaurants and other eating areas, timeclocks, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive, or are, in fact, segregated on the basis of race, color, religion, national origin, age or disability, because of habit, local custom, or otherwise. The only exception will be for the disabled when the demands for accessibility override (e.g. disabled parking).

c. The contractor agrees that it has obtained or will obtain identical certification from proposed subcontractors or material suppliers prior to award of subcontracts or consummation of material supply agreements of \$10,000 or more and that it will retain such certifications in its files.

IV. PAYMENT OF PREDETERMINED MINIMUM WAGE

(Applicable to all Federal-aid construction contracts exceeding \$2,000 and to all related subcontracts, except for projects located on roadways classified as local roads or rural minor collectors, which are exempt.)

1. General:

a. All mechanics and laborers employed or working upon the site of the work will be paid unconditionally and not less often than once a week and without subsequent deduction or rebate on any account [except such payroll deductions as are permitted by regulations (29 CFR 3) issued by the Secretary of Labor under the Copeland Act (40 U.S.C. 276c)] the full amounts of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment. The payment shall be computed at wage rates not less than those contained in the wage determination of the Secretary of Labor (hereinafter "the wage determination") which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor or its subcontractors and such laborers and mechanics. The wage determination (including any additional classifications and wage rates conformed under paragraph 2 of this Section IV and the DOL poster (WH-1321) or Form FHWA-1495) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers. For the purpose of this Section, contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act (40 U.S.C. 276a) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of Section IV, paragraph 3b, hereof. Also, for the purpose of this Section, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred

during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in paragraphs 4 and 5 of this Section IV.

b. Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein, provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed.

c. All rulings and interpretations of the Davis-Bacon Act and related acts contained in 29 CFR 1, 3, and 5 are herein incorporated by reference in this contract.

2. Classification:

a. The SHA contracting officer shall require that any class of laborers or mechanics employed under the contract, which is not listed in the wage determination, shall be classified in conformance with the wage determination.

b. The contracting officer shall approve an additional classification, wage rate and fringe benefits only when the following criteria have been met:

(1) the work to be performed by the additional classification requested is not performed by a classification in the wage determination;

(2) the additional classification is utilized in the area by the construction industry;

(3) the proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination; and

(4) with respect to helpers, when such a classification prevails in the area in which the work is performed.

c. If the contractor or subcontractors, as appropriate, the laborers and mechanics (if known) to be employed in the additional classification or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the DOL, Administrator of the Wage and Hour Division, Employment Standards Administration, Washington, D.C. 20210. The Wage and Hour Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

d. In the event the contractor or subcontractors, as appropriate, the laborers or mechanics to be employed in the additional classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the question, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. Said Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

e. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraph 2c or 2d of this Section IV shall be paid to all workers performing work in the additional classification from the first day on which work is performed in the classification.

3. Payment of Fringe Benefits:

a. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor or subcontractors, as

appropriate, shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly case equivalent thereof.

b. If the contractor or subcontractor, as appropriate, does not make payments to a trustee or other third person, he/she may consider as a part of the wages of any laborer or mechanic the amount of any cost reasonably anticipated in providing bona fide fringe benefits under a plan or program, provided that the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

4. Apprentices and Trainees (Programs of the U.S. DOL) and Helpers:

a. Apprentices:

(1) Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the DOL, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau, or if a person is employed in his/her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State apprenticeship agency (where appropriate) to be eligible for probationary employment as an apprentice.

(2) The allowable ratio of apprentices to journeyman-level employees on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any employee listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate listed in the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor or subcontractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman-level hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

(3) Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman-level hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator for the Wage and Hour Division determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

(4) In the event the Bureau of Apprenticeship and Training, or a State apprenticeship agency recognized by the Bureau, withdraws approval of an apprenticeship program, the contractor or subcontractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the comparable work performed by regular employees until an acceptable program is approved.

b. Trainees:

(1) Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and

individually registered in a program which has received prior approval, evidenced by formal certification by the DOL, Employment and Training Administration.

(2) The ratio of trainees to journeyman-level employees on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

(3) Every trainee must be paid at not less than the rate specified in the approved program for his/her level of progress, expressed as a percentage of the journeyman-level hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman-level wage rate on the wage determination which provides for less than full fringe benefits for apprentices, in which cases such trainees shall receive the same fringe benefits as apprentices.

(4) In the event the Employment and Training Administration withdraws approval of a training program, the contractor or subcontractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Helpers:

Helpers will be permitted to work on a project if the helper classification is specified and defined on the applicable wage determination or is approved pursuant to the conformance procedure set forth in Section IV. 2. Any worker listed on a payroll at a helper wage rate, who is not a helper under a approved definition, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed.

5. Apprentices and Trainees (Programs of the U.S. DOT):

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

6. Withholding:

The SHA shall upon its own action or upon written request of an authorized representative of the DOL withhold, or cause to be withheld, from the contractor or subcontractor under this contract or any other Federal contract with the same prime contractor or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements which is held by the same prime contractor, as much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainee's and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the SHA contracting officer may, after written notice to the contractor, take

such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

7. Overtime Requirements:

No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers, mechanics, watchmen, or guards (including apprentices, trainees, and helpers described in paragraphs 4 and 5 above) shall require or permit any laborer, mechanic, watchman, or guard in any workweek in which he/she is employed on such work, to work in excess of 40 hours in such workweek unless such laborer, mechanic, watchman, or guard receives compensation at a rate not less than one-and-one-half times his/her basic rate of pay for all hours worked in excess of 40 hours in such workweek.

8. Violation:

Liability for Unpaid Wages; Liquidated Damages: In the event of any violation of the clause set forth in paragraph 7 above, the contractor and any subcontractor responsible thereof shall be liable to the affected employee for his/her unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory) for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer, mechanic, watchman, or guard employed in violation of the clause set forth in paragraph 7, in the sum of \$10 for each calendar day on which such employee was required or permitted to work in excess of the standard work week of 40 hours without payment of the overtime wages required by the clause set forth in paragraph 7.

9. Withholding for Unpaid Wages and Liquidated Damages:

The SHA shall; upon its own action or upon written request of any authorized representative of the DOL withhold, or cause to be withheld, from any monies payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph 8 above.

V. STATEMENTS AND PAYROLLS

(Applicable to all Federal-aid construction contracts exceeding \$2,000 and to all related subcontracts, except for projects located on roadways classified as local roads or rural collectors, which are exempt.)

1. Compliance with Copeland Regulations (29 CFR 3):

The contractor shall comply with the Copeland Regulations of the Secretary of Labor which are herein incorporated by reference.

2. Payrolls and Payroll Records:

- a.** Payrolls and basic records relating thereto shall be maintained by the contractor and each subcontractor during the course of the work and preserved for a period of 3 years from the date of completion of the contract for all laborers, mechanics, apprentices, trainees, watchmen, helpers, and guards working at the site of the work.
- b.** The payroll records shall contain the name, social security number, and address of each such employee; his or her correct classification; hourly rates of wages paid (including rates of

contributions or costs anticipated for bona fide fringe benefits or cash equivalent thereof the types described in Section 1(b)(2)(B) of the Davis Bacon Act); daily and weekly number of hours worked; deductions made; and actual wages paid. In addition, for Appalachian contracts, the payroll records shall contain a notation indicating whether the employee does, or does not, normally reside in the labor area as defined in Attachment A, paragraph 1. Whenever the Secretary of Labor, pursuant to Section IV, paragraph 3b, has found that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section 1(b)(2)(B) of the Davis Bacon Act, the contractor and each subcontractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, that the plan or program has been communicated in writing to the laborers or mechanics affected, and show the cost anticipated or the actual cost incurred in providing benefits. Contractors or subcontractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprentices and trainees, and ratios and wage rates prescribed in the applicable programs.

- c.** Each contractor and subcontractor shall furnish, each week in which any contract work is performed, to the SHA resident engineer a payroll of wages paid each of its employees (including apprentices, trainees, and helpers, described in Section IV, paragraphs 4 and 5, and watchmen and guards engaged on work during the preceding weekly payroll period). The payroll submitted shall set out accurately and completely all of the information required to be maintained under paragraph 2b of this Section V. This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal stock number 029-005-0014-1), U.S. Government Printing Office, Washington, D.C. 20402. The prime contractor is responsible for submitting payroll copies of all subcontractors.
- d.** Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the Contractor or subcontractor or his/her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:
 - (1)** that the payroll for the payroll period contains the information required to be maintained under paragraph 2b of this Section V and that such information is correct and complete;
 - (2)** that such laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in the Regulations, 29 CFR 3;
 - (3)** that each laborer or mechanic has been paid not less than the applicable wage rate and fringe benefits or cash equivalent for the classification of worked performed, as specified in the applicable wage determination incorporated into the contract.
- e.** The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 2d of this Section V.
- f.** The falsification of any of the above certifications may subject the contractor to civil or criminal prosecution under 18 U.S. C. 1001 and 31 U.S.C. 231.
- g.** The contractor or subcontractor shall make the records required under paragraph 2b of this Section V available for inspection, copying, or transcription by authorized representatives of the SHA, the FHWA, or the DOL, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the SHA, the FHWA, the DOL, or all may, after written notice to the contractor, sponsor, applicant, or owner, take such

actions as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

VI. RECORD OF MATERIALS, SUPPLIES, AND LABOR

1. On all federal-aid contracts on the national highway system, except those which provide solely for the installation of protective devices at railroad grade crossings, those which are constructed on a force account or direct labor basis, highway beautification contracts, and contracts for which the total final construction cost for roadway and bridge is less than \$1,000,000 (23 CFR 635) the contractor shall:

- a. Become familiar with the list of specific materials and supplies contained in Form FHWA-47, "Statement of Materials and Labor Used by Contractor of Highway Construction Involving Federal Funds," prior to the commencement of work under this contract.
 - b. Maintain a record of the total cost of all materials and supplies purchased for and incorporated in the work, and also of the quantities of those specific materials and supplies listed on Form FHWA-47, and in the units shown on Form FHWA-47.
 - c. Furnish, upon the completion of the contract, to the SHA resident engineer on /Form FHWA-47 together with the data required in paragraph 1b relative to materials and supplies, a final labor summary of all contract work indicating the total hours worked and the total amount earned.
2. At the prime contractor's option, either a single report covering all contract work or separate reports for the contractor and for each subcontract shall be submitted.

VII. SUBLETTING OR ASSIGNING THE CONTRACT

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the State. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractors' own organization (23 CFR 635).

- a. "Its own organization" shall be construed to include only workers employed and paid directly by the prime contractor and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor, assignee, or agent of the prime contractor.
- b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph 1 of Section VII is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the SHA contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the SHA contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the SHA has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

VIII. SAFETY: ACCIDENT PREVENTION

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the SHA contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S. C. 333).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 333).

IX. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, the following notice shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

NOTICE TO ALL PERSONNEL ENGAGED ON FEDERAL-AID HIGHWAY PROJECTS

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined not more than \$10,000 or imprisoned not more than 5 years or both."

X. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

(Applicable to all Federal-aid construction contracts and to all related subcontracts of \$100,000 or more).

By submission of this bid or the execution of this contract, or subcontract, as appropriate, the bidder, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any facility that is or will be utilized in the performance of this contract, unless such contract is exempt under the Clean Air Act, as amended (42 U.S.C. 1857 *et seq.*, as amended by Pub.L. 91-604), and under the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 *et seq.*, as amended by Pub.L. 92-500), Executive Order 11738, and regulations in implementation thereof (40 CFR 15) is not listed, on the date of contract award, on the U.S. Environmental Protection Agency (EPA) List of Violating Facilities pursuant to 40 CFR 15.20.

2. That the firm agrees to comply and remain in compliance with all the requirements of Section 114 of the Clean Air Act and Section 308 of the Federal Water Pollution Control Act and all regulations and guidelines listed thereunder.

3. That the firm shall promptly notify the SHA of the receipt of any communication from the Director, Office of Federal Activities, EPA indicating that a facility that is or will be utilized for the contract is under consideration to be listed on the EPA List of Violating Facilities.

4. That the firm agrees to include or cause to be included the requirements of paragraph 1 through 4 of this Section X in every nonexempt subcontract, and further agrees to take such action as the government may direct as a means of enforcing such requirements.

XI. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

1. Instructions for Certification - Primary Covered Transactions:

(Applicable to all Federal-aid contracts - 49 CFR 29)

a. By signing and submitting this proposal, the prospective primary participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective primary participant to furnish a certification or an explanation shall disqualify such a person from participation in

this transaction.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the department or agency determined to enter into this transaction. If it is later determined that the prospective primary participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause of default.

d. The prospective primary participant shall provide immediate written notice to the department or agency to whom this proposal is submitted if any time the prospective primary participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "person," "primary covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the department or agency to which this proposal is submitted for assistance in obtaining a copy of those regulations.

f. The prospective primary participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective primary participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," provided by the department or agency entering into this covered transaction, without modification in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the nonprocurement portion of the "Lists of Parties Excluded from Federal Procurement or Nonprocurement Programs" (Nonprocurement List) which is compiled by the General Services Administration.

i. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph f of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Primary Covered Transactions

1. The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:

a. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from

- covered transactions by any Federal department or agency;
- b.** Have not within a 3-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
 - c.** Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph 1b of this certification; and
 - d.** Have not within a 3-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

2. Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

2. Instructions for Certification - Lower Tier Covered Transactions:

(Applicable to all subcontracts, purchase orders and other lower tier transactions of \$25,000 or more - 49 CFR 29)

- a.** By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.
- b.** The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.
- c.** The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.
- d.** The terms "covered transaction," "debarred," "suspended," "ineligible," "primary covered transaction," "participant," "person," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations.
- e.** The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.
- f.** The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.
- g.** A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not

- required to, check the Nonprocurement List.
- h.** Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealing.
- i.** Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

Certification Regarding Debarment, Suspension, Ineligibility And Voluntary Exclusion-Lower Tier Covered Transactions:

- 1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.
- 2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

XII. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

(Applicable to all Federal-aid construction contracts and to all related subcontracts which exceed \$100,000 - 49 CFR 20)

- 1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:
 - a.** No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
 - b.** If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not

more than \$100,000 for each such failure.

3. The prospective participant also agrees by submitting his or her bid or proposal that he or she shall require that the language of this certification be included in all lower tier subcontracts, which exceed \$100,000 and that all such recipients shall certify and disclose accordingly.

**MINIMUM WAGES FOR FEDERAL AND FEDERALLY
ASSISTED CONSTRUCTION CONTRACTS**

This project is funded, in part, with Federal-aid funds and, as such, is subject to the provisions of the Davis-Bacon Act of March 3, 1931, as amended (46 Sta. 1494, as amended, 40 U.S.C. 276a) and of other Federal statutes referred to in a 29 CFR Part 1, Appendix A, as well as such additional statutes as may from time to time be enacted containing provisions for the payment of wages determined to be prevailing by the Secretary of Labor in accordance with the Davis-Bacon Act and pursuant to the provisions of 29 CFR Part 1. The prevailing rates and fringe benefits shown in the General Wage Determination Decisions issued by the U.S. Department of Labor shall, in accordance with the provisions of the foregoing statutes, constitute the minimum wages payable on Federal and federally assisted construction projects to laborers and mechanics of the specified classes engaged on contract work of the character and in the localities described therein.

General Wage Determination Decisions, modifications and supersedes decisions thereto are to be used in accordance with the provisions of 29 CFR Parts 1 and 5. Accordingly, the applicable decision, together with any modifications issued, must be made a part of every contract for performance of the described work within the geographic area indicated as required by an applicable DBRA Federal prevailing wage law and 29 CFR Part 5. The wage rates and fringe benefits contained in the General Wage Determination Decision shall be the minimum paid by contractors and subcontractors to laborers and mechanics.

NOTICE

The most current **General Wage Determination Decisions** (wage rates) are available on the IDOT web site. They are located on the Letting and Bidding page at <http://www.dot.state.il.us/desenv/delett.html>.

In addition, ten (10) days prior to the letting, the applicable Federal wage rates will be e-mailed to subscribers. It is recommended that all contractors subscribe to the Federal Wage Rates List or the Contractor's Packet through IDOT's subscription service.

PLEASE NOTE: if you have already subscribed to the Contractor's Packet you will automatically receive the Federal Wage Rates.

The instructions for subscribing are at <http://www.dot.state.il.us/desenv/subsc.html>.

If you have any questions concerning the wage rates, please contact IDOT's Chief Contract Official at 217-782-7806.